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Address

THE HYPOPHYSIS CEREBRI

CLINICAL ASPECTS OF HYPERPITUITARISM AND OF HYPOPITUITARISM*

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BALTIMORE

Few chapters in the history of medicine tell a more creditable story than that which relates our progress toward a better understanding of the thyroid and parathyroid glands. A combination of clinical, experimental and surgical experiences during the past twenty years has served to unveil many of the mysteries which formerly surrounded the function of these structures, whose normal activities prove to be so essential to the maintenance of physiologic equilibrium. Myxedema, cretinism, exophthalmic goiter, surgical myxedema (cachexia strumipriva) and tetany have come to be understandable maladies, definitely amenable to rational methods of treatment—and organotherapy, when glandular activity is subnormal, or partial surgical removal to correct functional over-activity, is a triumph of the experimental method in medicine, at the hands of Horsley, Kocher, Halsted, Gley, Vassale and Generale, MacCallum and a host of others.

Not the least memorable incident of the entire story was the recognition, first by the Italian investigators, of the important rôle played by the lesser glands—the parathyroid bodies—in occasioning the so-called acute cachexia thyreopriva with tetanoid symptoms; for without this knowledge the condition of myxedema must have remained obscure from inability to produce its experimental counterpart, and actual investigation of the parathyroids might have been long delayed.

No less satisfactory a tale is in the making as regards a hitherto even more obscure member of the family of ductless glands—the pituitary body—and it is my purpose on this occasion to recount briefly some of the steps already taken toward a better knowledge of the normal function and the part played in certain diseases by this peculiar and inaccessible structure—called "l'organe enigmatique" by Van Gehuchten. Our progress, such as it is, would have been much slower without the previous experiences with the cervical glands, for out of the confusion which long reigned in their case from lack of appreciation of the double glandular rôle a lesson has been learned and applied to the pituitary body, for it likewise combines glandular structures of widely differing function.

Not only in view of the general awakening of interest in the subject, but owing to the fact that most of the recent work on the hypophysis has appeared in foreign languages, it has seemed to me that a simple review of our knowledge of the anatomy and physiology of the gland and some discussion necessarily of a more speculative character as to the part it plays in certain diseases would make an appropriate topic for this annual oration.

THE GLANDULAR STRUCTURE

Regarded by the ancients as an organ which discharged *pituita* or mucus into the nose, and by most scientists of the past century as a mere vestigial relic of prehistoric usefulness, our first insight into a possible functional activity of this gland came from the laboratories of the modern comparative anatomists and embryologists, with many of whom it has been a favorite object of research. As a knowledge of its structure, development and morphologic significance is essential to the proper understanding of matters relating to its function, it may not be out of place to briefly recall here some few of the more important facts:

Rathke, in 1838, described an invagination of mucous membrane, supposedly arising from the anterior end of the foregut—since known as Rathke's pouch—and correctly attributed to this origin the epithelial portion of the pituitary body, which before this time was thought to be wholly derived from the brain. It remained for Götte and Balfour and Mihalkovics, in 1874 and 1875, to show that the invagination described by Rathke was derived from the embryonic buccal cavity rather than from the primitive gut, and hence was of ectodermic rather than of entodermic origin.

This ectodermic and epithelial pouch of Rathke, therefore, projecting from the buccal cavity and pressing against the floor of the anterior cerebral vesicle, leads to a downward fold in its wall, which becomes the early infundibulum. The stalk of the epithelial pouch becomes cut off, leaving a closed sac—the hypophyseal sac—which embraces the thickening wall or infundibular body at the tip of the vesicular fold, and the combined epithelial and nervous structure represents the anlage of the adult hypophysis. As the primitive gland develops further the epithelium of the anterior or lower part of the closed sac representing the remains of Rathke's pouch becomes thickened, forming the anterior lobe of the pituitary body. A more or less definite cleft separates this portion of the gland from the so-called posterior lobe, composed of the upper portion of the primitive closed epithelial sac together with the infundibular body to which it has become intimately adherent and with which it remains functionally associated. It is the persistence of this cleft in the mammalian hypophysis which usually permits of an easy, gross anatomic or surgical separation of the two lobes.

Thus the neural portion of the gland (the infundibular body) becomes surrounded by an intimate epithelial investment pos-

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* From an etymological point of view the terms *hyper-, hypo-, dys-,* and *a-pituitarism* are doubtless of badly mixed parentage, but there are certain obvious objections to such a combination as *hypohypophysism*, and I have therefore concluded to retain the Latin word with its Greek prefix. *Hyperpituitism*, etc., might possibly be less unwieldy.

sessing a different histologic picture in the adult gland from that which characterizes the anterior lobe, though the two are of the same ectodermic origin. In accordance with the terminology proposed by Herring, this epithelial investment of the posterior lobe, together with its upward extension onto the outer walls of the infundibular stalk will be referred to as the *pars intermedia;* the infundibular body itself, as the *pars nervosa*, and the anterior, epithelial portion separated, from these by the persisting cleft, as the *pars anterior*.

The posterior lobe as a whole is scantily vascularized through a single stalk of vessels which enter this part of the gland at its posterior surface; the anterior lobe, on the other hand, is excessively vascular, the vessels of its outer or cortical portion in particular being sinusoidal in character. Apparently, the blood supply to this portion of the gland, from observations made by Dr. G. J. Heuer, comes, at least in the dog, through the infundibular stalk; and at all events separation of this stalk may seriously jeopardize or, according to Paulesco, effectually check the functional activity of the gland. To this I shall return when discussing the operative procedures.

Histologically, the anterior lobe is seen to be made up of cells with a peculiar staining reaction, the protoplasm of some of them being receptive to eosin, some to hematoxylin, and some barely staining at all. These are thought to represent merely periods of activity in the same type of cells—the eosinophilic cells being generally regarded as representing the functionally mature stage. These active cells seem to distribute themselves in the neighborhood of the thin-walled venous sinuses, into which they doubtless discharge their secretion. Some, indeed, have claimed that the product of cellular activity can be demonstrated under favorable conditions within the lumen of the vessels.

In the pars intermedia, investing the posterior lobe, the cells are of a different type, without eosinophilic granules, and it is here chiefly that one finds a tubular or acinous distribution of cells which have a tendency to secrete colloid resembling in appearance the secretion characteristic of the thyroid gland. These cells also seem, under certain circumstances, actually to invade the pars nervosa, into which the product of their secretion is directly discharged, whence, as Herring first pointed out, it seems to pass through tissue channels toward the infundibular cavity, to find its way ultimately between the ependymal cells into the cerebrospinal cavity of the third ventricle.

We have come fully to accept this view of Herring's, and under certain experimental conditions we have seen the masses of hyaline secretion which stream through the pars nervosa toward the cerebrospinal space enormously increased in amount. In certain animals, as the dog and monkey, the cells of the pars intermedia extend well up over the stalk of the hypophysis and around the infundibulum, and hence in removal of the whole gland it is almost inevitable that some functionally active fraction of the pars intermedia remains attached.

The pars nervosa itself contains no true nerve cells, being made up of ependymal and neuroglial tissue which is so loosely laid down that the spaces which apparently serve as the channels through which this hyaline-like secretion passes toward the third ventricle can be easily detected. Whether the pars nervosa actually has a secretion of its own, whether it serves to modify or merely to transmit the secretion from the pars intermedia, are questions which must await solution.

Anatomical studies, therefore, show us that the pituitary body, present in all vertebrates, is a composite gland with a double source of origin. It is made up (1) of a smaller posterior lobe with a nucleus of neural origin (pars nervosa), which, developing from the infundibular pouch of the thalamencephalon, becomes invested by and intimately fused with a portion of the epithelial sac (pars intermedia) that has arisen from a diverticulum of the buccal epithelium; and (2) of a larger, purely epithelial lobe (pars anterior) arising from the same source as the pars intermedia, from which it remains, however, more or less separated by a cleft—a vestige of the cavity of the original epithelial invagination from the primitive mouth.

THE GLANDULAR FUNCTION

There are a number of ways in which we may approach matters relating to the function of a gland: by laboratory methods of comparative physiology, by the experimental production of pathologic conditions, and by observing the symptomatology of clinical cases and correlating them either with postmortem findings or with the conditions disclosed or brought about by surgical procedures.

Physiologists are accustomed to attack these problems in two ways, by observing, on the one hand, the symptoms brought about by hypersecretion, and, on the other, those consequent on a lessened or hyposecretion, The first—the consequences of over-secretion—must, unfortunately, rest largely with observations on the effects of ingestion or of subcutaneous or intravenous administration of the material extracted from the glands of other animals; for until some hormone can be isolated there seems to be no way by which the pituitary body, or any other ductless gland, may be so over-activated as to give a permanent and pathologic excess of secretion. Transplantations of additional glands from other animals have signally failed in this respect.

Limited, however, as the injection methods are, they have nevertheless taught us certain important facts: first, that the hypophysis of all animals contains a blood-pressure-raising principle, confined, as Howell has proven, to the posterior lobe and restricted, as we believe, to the pars nervosa of this lobe; and second, that an extract or emulsion of this same lobe has a marked diuretic effect on the kidneys (Schäfer)—whether from direct action on the renal epithelium or from the rise in blood pressure and increased volume of the organ seems undecided. The blood-pressure-raising substance, though occasioning a more enduring rise in pressure than that produced by the more familiar extract of the adrenal glands, seems nevertheless to be akin to adrenalin, one striking resemblance being the pupillary dilatation which follows the instillation of either of these substances into the eye.

My associate, Dr. S. J. Crowe, has corroborated the findings of others that successive injections of posterior lobe extract not only soon fail to cause a rise in blood pressure, but may produce an actual fall, or indeed on several repetitions may even be fatal. It has been shown that extract of the gland when boiled still retains undiminished its evidences of physiologic activity (shown by the blood pressure reaction), so that it is possible to introduce sterile extract. Certain of Crowe's observations have given evidence that repeated daily injections are exceedingly deleterious to the well-being of the animal and lead frequently to extreme tissue alterations, particularly in the liver, a disturbance which apparently is due to posterior lobe secretion rather than of anterior.

Beyond these few properties possessed by an extract of the posterior lobe, the methods of injection have taught us little or nothing indeed regarding the function of the anterior lobe, which histologically would seem to be by far the more important part of the gland. Sandri has observed some apparent thickening of the bones and atheromatous patches in the arteries following intraperitoneal injections in young animals but we have failed as yet to produce any constant disturbances except a definite loss of weight by repeated (over weeks) injections of extracts of pars anterior alone, using the boiled extract or the emulsion of fresh and aseptically removed glands.

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All this goes to indicate how far removed we are from a satisfactory organotherapy of the hypophysis, for as yet most of the available preparations contain the extract of both lobes, and so long at least as there is any confusion as to their separate activity, particularly in view of possible injury from excessive posterior lobe administration, we must restrict our studies, as well as their therapeutic application so far as possible to the individual lobes.

The reverse of these experimental observations directed toward the effects of over-activity of one or another part of the gland, concerns the effects of their diminished secretion; and here the problem might be simple were it not for the fact that Nature has placed the pituitary body in one of the best protected and most inaccessible spots in the body. It is here that modern surgical methods have been called on to play their part in furthering knowledge of these matters.

Since the earlier unsuccessful attempts to remove the hypophysis by operation, many investigators have endeavored in divers ways to find some satisfactory approach to the gland in an animal suitable for experimental observation. Frogs, cats, dogs, chickens and monkeys have been used for this purpose at various hands, with the attempt either to extirpate the gland or to destroy it *in situ*. It has been approached from below by numerous transphenoidal routes, the best of which are attended with a great risk of subsequent cerebrospinal infection; numerous intracranial methods of approach have been likewise evolved: through the vertex, with penetration of the cerebrum or separation of its hemispheres; through the forehead with elevation of the frontal lobes; and from the side by a passage under the temporal lobe.

Leaving aside for the time being the question of the preferable approach to the gland under various circumstances in man, and confining ourselves to the experimental problem, there can be no doubt but that the lateral and intracranial approach under the temporal lobe is the only method worth considering in the canine—the animal most suitable for these researches. Paulesco was the first to appreciate the possibilities offered by this operation when coupled with a certain principle of modern cerebral explorations—that of dislocation. The steps of the procedure have already been described by Dr. Lewis L. Reford and myself, and during the past year, in collaboration with Dr. S. J. Crowe and Dr. John Homans, the method has been perfected to such an extent that in our later series—and we have had all told more than one hundred total or partial hypophysectomies—it has been possible, in an hour's time, to carry through an individual operation, treating the gland in the way desired, without any complication whatsoever either from bleeding during the operation or from subsequent infection. A report *in extenso* of our experimental, clinical and pathologic observations on the gland will be forthcoming, but it will not detract from its interest to mention here a few of our results, in order to round out this general review of the entire subject.

Since the brief report of our work of a year ago[1] we have gained further and more conclusive evidence as to the correctness of the view that the pituitary body is essential to the maintenance of life, though the important fact has been brought out by Dr. Crowe that young dogs survive the total loss of the gland for a considerably longer period than do older dogs; and we have been able to prolong life for a time, though not indefinitely, by immediate or antecedent transplantation of the anterior lobe or by postoperative injection of its extract.

Since Paulesco, in 1908, published the results of his investigations, the reports of subsequent researches have appeared which are not confirmatory of his more important contention; but it is our impression, from their careful perusal, that the results are inconclusive, owing to the employment of unsatisfactory surgical methods. The assertion may safely be made that the total removal of the gland leads, in the course of days or at most of a few weeks, to death with a peculiar and characteristic train of symptoms (apituitarism or cachexia hypophyseopriva).

Does this property of maintaining the physiologic equilibrium reside in the anterior or the posterior lobe? The anatomic separation of the posterior from the anterior lobe by a persisting cleft has been mentioned, and this line of cleavage, when facility in the surgical procedure has been acquired, makes possible in the dog the operative separation of the two lobes and the removal of one of them singly—the posterior more easily than the anterior. No particularly characteristic symptoms, if we may possibly exclude some sexual disturbances, appear to follow the loss even of the entire posterior lobe (pars nervosa and its epithelial investment), though it must be confessed that some of the epithelium of the pars intermedia usually remains attached to the tip of the infundibulum after the operation.

Now, it is otherwise with the anterior lobe, for its partial removal, supposedly equivalent to a condition of hyposecretion of this part of the gland, though not incompatible with life nevertheless leads in some cases to profound alterations—notably an increase in the deposition of fat. This condition seems to have occurred in one of the animals of Paulesco's series—a chance observation to which especial attention does not seem to have been paid. We have had a number of similar experiences; and indeed believe that we have succeeded in purposefully producing this condition which we regard as characteristic of lessened secretion. The adiposity has been associated in some cases with polyuria and transient glycosuria, with shedding of hair, occasionally with unmistakable lessening of sexual activities and even with atrophy of testes and ovaries.

The problems relating to bodily growth and to organs of sex are especially difficult ones, requiring as they do months of observation; and concerning them our data is as yet very insufficient, though in all probability they are matters which are associated with the function of the anterior rather than of the posterior lobe. To correlate fully our experimental with the clinical conditions to be described, a long series of partial removals of the anterior lobe in animals of different ages and of both sexes will be required.

In all these observations, not only on the hypophysis cerebri, but on any other of the ductless glands, there is one vitally important matter that is not to be disregarded—namely, the close physiologic interrelation of all of these structures[2]. It is impossible to remove—probably partially to remove—the hypophysis without producing marked alterations in all the other glands—

1. Johns Hopkins Hosp. Bull., 1909, xx, p. 105.

2. Though the hypophyseal question was not considered by them, an article by Eppinger, Falta and Rudinger (Ueber die Wechselwirkungen der Drüsen mit innerer Sekretion. Ztschr. f. klin. Med., 1908, lxvi, 1-52) is of interest in this connection. Cf. also: Rénon, Delille and Monier-Vinard: Syndrome polyglandulaire par dushypophyse et par insuffisance thyro-testiculaire, Bull. et mém. Soc. méd. des Hôp. de Paris, 1909, series 3, xxvi, 204-211.

thyroid, parathyroid, adrenal, testicle, ovaries, islands of Langerhans, and thymus. Changes in the hypophysis consequent on thyroidectomy or castration have long been known, and after an hypophysectomy we have found the reverse to be true—the simplest example being an acute hypertrophy of the thyroid.

This interrelation of the ductless glands makes the problem the more interesting and at the same time increasingly difficult. Does the adiposity following partial hypophysectomy hold any possible relation to the secondary lesions in the ovaries or testes, or the glycosuria to alterations in the islands of Langerhans or thyroid? Answers to these and other similar questions must await further investigation. Then, too, it must be borne in mind that the various ductless glands not only give evidence of adaptation to a pathologic process affecting one or another member of their family, but respond to an unusual physiologic process likewise, as is illustrated by the recognizable functional alterations in the thyroid and hypophysis which accompany pregnancy.

Thus, it would appear, from these various investigations on the physiology of the hypophysis that the extract of the physiologically active posterior lobe, supposedly the most important part of the gland, may be actually harmful when injected, and yet after this portion of the gland has been removed there is no apparent disturbance with the physiologic balance of the body. On the other hand, the supposedly inactive anterior lobe can not be removed in its entirety (leading to a condition of apituitarism) and life be long maintained. This portion of the gland, furthermore, seems primarily to be associated with the growth of the body, with the metabolism of fat, with sexual activities, and to be bound up in ways which as yet are symptomatically obscure with the function probably of all the other ductless glands of the body.

CLINICAL SYMPTOMATOLOGY

Let us pass from these scant observations on the anatomy and physiology of the gland to see in how far they may be applied not only to the few maladies which are under the suspicion of being primarily hypophyseal diseases, but also to other conditions which may show secondary symptoms possibly of hypophyseal origin. Among the primary diseases acromegaly and gigantism naturally deserve the first mention.

Since Pierre Marie, in 1886, gave the name acromegaly to the peculiar and unmistakable malady characterized by striking deformities due to skeletal overgrowth, and in 1889 called attention to the fact that an hypophyseal enlargement (adenoma or hyperplasia) was a frequent accompaniment of the condition, there has been an active dispute in regard to the part, if any, which the gland actually plays in the disease. Many cases of acromegaly have been recorded in which, in agreement with Marie, glandular enlargements or tumors of the pituitary body, with the characteristic deformation of the sella turcica, have been demonstrated after death.[3] On the other hand, there have been a still larger number of carefully studied cases in which a tumor of the hypophysis or of its neighborhood has been unaccompanied by these symptoms. Finally, a few cases of undoubted acromegaly have been described in which the hypophysis on postmortem examination is said to have been normal in every respect.

Now these apparently conflicting observations are possibly not difficult of explanation in the light of our somewhat more definite knowledge as to whether the underlying condition is one of glandular hypersecretion or hyposecretion—a far more important matter than the mere association, or otherwise, with a tumor. In glands affected by an adenomatous growth, as well as in those the subject of simple hyperplasia, it is a natural conjecture that there may be some excess of glandular secretion. However, in view of the many instances of hypophyseal tumor occurring without acromegaly, Massalongo's supposition that the disease represents a condition of hyperfunction—hyperpituitarism—has been widely discredited. It is believed by Benda and others that an excess of large cells in the eosinophilic stage indicates an overactive gland, but as this supposition has not been widely accepted it is easily understood how a pathologic overactivity in glands not macroscopically enlarged may have escaped recognition, so that the supposed finding of actually normal glands in association with acromegaly must be open to grave doubt.[4]

It has remained for surgical measures to cast the deciding vote in favor of the hypersecretion theory, for there have been two fairly conclusive cases. One of them was a case of Hochenegg's in which a successful effort was made to remove the gland completely, and the other an unpublished case of my own, in which, purposely, a partial hypophysectomy only of the anterior lobe was performed. In the latter case the tissues resemble histologically what we regard as a simple hypertrophy, and the patient has been not only completely relieved of the pressure symptoms, but there has been an actual measurable postoperative reduction in the size of the hands. In Hochenegg's patient there was a measurable diminution of the bony overgrowth, shown first by a narrowing of the spaces between the teeth. Even a tendency toward subsidence of the disease after a partial hypophysectomy—equivalent to the partial thyroidectomy for exophthalmic goiter—would seem to speak conclusively in favor of the hyperpituitarism theory.

That tumors of the gland or of its vicinity may be found unaccompanied by symptoms of acromegaly is precisely what would be expected. Indeed, if there is a resultant interference with the normal secretory activity of the gland one would expect the reverse condition, but this will be considered more appropriately under the heading of hyposecretion.

The relation of gigantism to acromegaly and of both of these to a possible lesion of the hypophysis has been much discussed, and the generalization of Massalongo, that acromegaly is nothing but delayed or abnormal gigantism, has been endorsed by Meige, Woods Hutchinson and Bassoe, who have made the most thorough studies of the question. Thus in Meige's formula, when hypophyseal disease—an evidence as we believe of over-

3. Marie and Marinesco (Sur l'anatomie pathologique de l'acromégalie. Arch. de méd. expér. et d'anat. path., 1891, p. 539) considered acromegaly as a dystrophy analogous to myxedema due to a diminution or an abolition of the functions of the hypophysis. Vessa'e and others go so far as to regard the hypophyseal hyperplasia, acknowledged to be present in a large percentage of acromegalics, not as the primary process but as one secondary to the general nutritional disorder.

4. The matter has been fully discussed in an able study by Dean Lewis (Hyperplasia of the Chromophile Cells of the Hypophysis as the Cause of Acromegaly. Johns Hopkins Hosp. Bull., 1905, xvi, p. 157) of a case of acromegaly with an hypophysis which appeared normal in its gross appearance but showed, in confirmation of Benda's view a definite hyperplasia of the chromophile cells.

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activity of the anterior lobe—commences in youth, gigantism occurs; when in adult life, acromegaly; when commencing in youth and continuing into adult life, a combination of the two is seen. The important fact is that an enlargement of the pituitary body is found in a large majority of cases of both acromegaly and gigantism, and it is a natural conclusion that they are merely different expressions of one and the same morbid condition.

What now are the clinical manifestations, if any, of diminished activity of the gland? There occurs a remarkable physical state characterized by sexual infantilism and adiposity—*dystrophia adiposo-genitalis*—a syndrome to which a paper by Fröhlich[5] first attracted general attention in Vienna, where most of these cases have subsequently been observed. The condition is probably far from an infrequent one, though it has received but tardy recognition in English and American writings.

These patients, in addition to the local pressure symptoms of a growth in the hypophyseal neighborhood show small stature, infantile genitalia, hypotrichosis and an excessive deposition of fat. The title of Fröhlich's paper—and there have been many other articles similarly entitled as "cases of hypophyseal tumor without acromegaly"—indicates a widespread misconception as to the cause not only of these symptoms, but of those described by Marie as well. It is equivalent to describing the goiter which may accompany cretinism or myxedema as "cases of tumor of the thyroid without exophthalmic goiter." This confusion clears away on better knowledge of the effects of hyposecretion, for it is my opinion that in these cases the pressure from the tumor has led to a considerable lessening of the normal glandular activity. In this light, they become equivalent to the canine partial hypophysectomies after which, as I have described, an excessive deposition of fat may occur (with the accretion in some cases of over one-third the former weight within a few weeks after the operation), accompanied at times by a definite atrophy of the genitalia.

One must acknowledge that not only the anterior, but the posterior lobe also, is in all probability affected by such a pressure disturbance from a neighboring tumor, so that the whole picture perhaps can not be ascribed to diminished activity of the anterior lobe alone. It is safe to say, however, that the small stature and the adiposity can be thus accounted for, and further investigations will doubtless reveal the cause for the sexual infantilism. This, indeed, may only be indirectly due to pituitary body alteration, the lessened secretion from which has failed in some way to activate the testicular or ovarian secretions.

It is important to note that among the earliest successful operations on the hypophysis have been those performed by v. Eiselsberg on patients exhibiting the symptoms described by Fröhlich, either with the removal of solid tumors or the evacuation of cystic growths. Striking improvement in the condition, shown by a lessening of fat and rapid appearance of sexual adolescence, has followed these operations, but I am unaware that this was ascribed to reawakening of functional activity in the previously compressed hypophysis, nor that especial care was taken to avoid its removal with the tumor.

It is noteworthy that a frequent early symptom of acromegaly or of gigantism associated with tumor is amenorrhea in women and impotence in men—though this need not apply to those adult cases which show a simple hypertrophy of the anterior lobe without tumor formation—and it is quite probable that here we see an overlap in the symptoms occasioned by hypersecretion of one part of the gland and diminished secretion of another. It must be kept in mind also that in the condition of "adiposo-genital degeneration" described by Fröhlich, which in the light of our experimental observations we consider to be due to hyposecretion, the malady begins to show itself before adolescence, and it is quite probable that the clinical picture, when the disease originates later in life, has a somewhat different aspect, just as gigantism differs from acromegaly. As an analogous condition in the case of the thyroid I may mention cretinism as the result of thyroid deficiency dating from childhood, and myxedema as the result of a similar deficit occurring in adult life.

One somewhat characteristic symptom of hyposecretion of the anterior lobe, not only after partial experimental ablations, but also evident in clinical conditions is polyuria, sometimes associated with glycosuria. This symptom, in our animals, we might possibly have attributed to a temporary activation of the retained posterior lobe, the secretion of which, as Schäfer has shown, possesses diuretic properties when injected, had it not been for the fact that it occurs in animals with a partial anterior and total posterior lobe removal. In some of our dogs in which there had been an increase of fat, these urinary symptoms persisted over months.

Clinical instances of hyposecretion are doubtless far from uncommon and probably many will recall illustrative cases in their own experience. I have heretofore recorded a typical case of the infantile type associated with a congenital teratoma of the hypophyseal region, and the following may serve as an instance of the adult condition—the patient having been under Dr. Heuer's and my observation this past winter:

A single woman, aged 36, had suffered from severe bitemporal headache for seven months, during which time there was a gain of 69 pounds (from 118 to 187 pounds) in weight. Polyuria was constant and sugar had been present in the urine from time to time. The hair had become thin and scanty. Evidences of the local lesion were shown by a primary optic atrophy unassociated with a choked disc, and by a homonomous hemianopsia. Amenorrhea had been present from the onset. The *x*-ray showed no enlargement of the sella turcica, and a lateral intracranial exploration (subtemporal) was performed, in the hope of exposing the growth so as to determine how it could best be attacked. It was not possible to dislocate the tense temporal lobe sufficiently to disclose the lesion. A transphenoidal operation was refused. The patient's condition remains unaltered.

Another history of considerable interest is:

The patient, a man aged 40, exhibited characteristic symptoms of intracranial pressure, thought to be due to tumor or to the edema of arteriosclerosis. A subtemporal decompression was performed, with complete relief for a year, during which time he became very fat. Subsequently, polyuria occurred with intermittent traces of sugar in the urine; he became somnolent, with a persistent subnormal temperature and slow pulse, and finally succumbed. A primary tubercle of the hypophysis (pars anterior) was found postmortem, in addition to a marked degree of cerebral arteriosclerosis.

5. Fröhlich's paper (Ein Fall von Tumor der Hypophysis Cerebri ohne Akromegalie, Wiener klin. Rundsch., 1901, 47, u. 48), describing two of these cases, preceded by several years an article of my own (Sexual Infantilism with Optic Atrophy in Cases of Tumor Affecting the Hypophysis Cerebri. Jour. Nerv. and Ment. Dis., November, 1900) in which two further cases were described, though insufficient emphasis was laid on the peculiar adiposity which was present in each. Both of these reports were made before a safe method of operative approach to the gland has been evolved.
Compare also, Berger's paper, Ein Fall von Tumor des Hypophysengegend mit obduktionsbefund. Ztschr. für klin. Med., 1904, liv, p. 448.

Whether the adiposis dolorosa of Dercum is akin to hypophyseal adiposis is not assured, though there are many features of the condition which lend support to such a conjecture. G. E. Price, in a recent article, describes the changes in the gland, but they are possibly no more marked than in the average adult gland; and from a histologic standpoint we are still groping for the characteristic cellular picture of lessened hypophyseal activity. Gross lesions of the pituitary body (tumors, etc.) have been found in at least four of the few reported cases that have come to autopsy; and there have been certain features of their symptomatology also which suggest a close relationship.

Symptoms of hypophyseal origin doubtless occur in association with many diseases in which they are overlooked, for we have found, in the examination of over a hundred glands taken at random from autopsy material, that histologic alterations are very common. It is not always possible to interpret the effect of these lesions, particularly since, on the clinical side, we are far from being on the alert for them. Certain hypophyseal symptoms, nevertheless, even in the state of our present knowledge, are capable of interpretation. This is particularly true of the glandular lesions which occur secondary to injuries and to intracranial tumors which are provocative of hydrocephalus.

In most of the cases of brain tumor which we have examined, Dr. G. J. Heuer and I have found characteristic gross alterations of the gland, which is often cup-shaped, flattened or otherwise deformed. This is particularly true of the cases in which there has been an associated internal hydrocephalus, in which one sees evidences of the damming back of the hyaline secretion of the posterior lobe, which often accumulates as a large hyaline cyst. This is what would be expected from Herring's observation. It is not inconceivable, therefore, that many of these patients would actually show symptoms of altered hypophyseal function were our attention more definitely centered on the activities of this gland. These symptoms would be more likely to fall in the group due to hyposecretion than that of hypersecretion, and may account for the occasional marked increase in weight, the amenorrhea and somnolence not infrequently seen in company with cerebral neoplasms.

These may be considered as secondary hypophyseal symptoms in contradistinction to the primary manifestations which occur when the gland is directly implicated by a growth in its immediate neighborhood—a state of things betrayed by the well-known local symptoms.

I have here endeavored to postulate in simple form some clinical conditions which we may safely regard as evidences of hypersecretion of the anterior lobe, as shown by overgrowth, and others which may equally well be taken as evidences of hyposecretion, shown by undergrowth or infantilism accompanied by a tendency toward an excessive deposition of fat. As we have seen, it is possible to simulate the latter condition by experimental methods. A condition corresponding to the clinical state due to hypersecretion still remains to be reproduced in the laboratory.

This simple subdivision must be taken merely as the suggestion for a working basis. It may in time prove to be wrong, and it signally fails to take into consideration not only the possible lesions of the other portions of the pituitary body (pars intermedia and pars nervosa), but also of the other correlated ductless glands. This fact, however, holds equally true for the condition of the other ductless glands in the analogous diseases of the thyroid—the hyperthyroidism of Graves' disease and the hypothyroidism of myxedema. Still, it gives us a certain hold on the maladies of the pituitary body which heretofore we seem not to have possessed.

There is every reason to suppose that functional irregularities of the hypophysis are at least as common as those of the thyroid gland, though heretofore only when a local neoplasm has clearly pointed the way to the hypophyseal region have the symptoms due to these irregularities been given the attention they deserve.

THERAPY

If such a subdivision of these conditions as our experimental observations have tempted us to make shall prove to be practicable, with a grouping of clinical cases into those suffering from excessive secretion (hyperpituitarism), *versus* those with diminished secretion (hypopituitarism), can we safely draw any conclusions therefrom which will hold out some promise of their future rational treatment?

It is far from utopian to look forward to the day when organotherapy, or, better, the administration of the isolated active principle of one or another part of the gland, will accomplish, at least for conditions of hyposecretion, what thyroid extract does for cretinism or myxedema. We can even now with reasonable certainty anticipate the results of anterior lobe administration for the adiposity associated with the conditions of hypopituitarism, and it is not improbable that many of the cases of adiposity of diverse origin which have been benefited in the past by thyroid administration have been so benefited in consequence of the indirect reawakening of activity in the hypophysis (and possibly with a secondary activation of the generative organs) resultant to this treatment.

Possibly less can be expected in the near future from glandular therapy for the conditions of hyperactivity, though it is conceivable that physiologic chemists may succeed in elaborating substances which will counteract the excessive secretion of any one of the ductless glands which may be under investigation.

At present, as is the case with hyperthyroidism, the cruder measures of surgery must be resorted to—namely, the partial removal of the hypertrophied or overactive gland. This, as I have stated, has been carried out with promising results in certain cases of acromegaly—a disease supposedly representing the effects of overaction of the gland in adult life. Our experimental observations, largely confirmatory of those of Paulesco, have shown that the procedure must be limited solely to a *partial* removal of the anterior lobe with careful avoidance of *total* removal, which leads to a condition of cachexia hypophyseopriva as definitely as does a complete thyroidectomy to one of cachexia strumipriva. In view of the experimental results, one would naturally apprehend serious consequences in man, as well as in animals, if the whole anterior lobe, or indeed of its major portion, be removed, though proper glandular administration of extract of this lobe would doubtless do for such a condition what thyroid extract does for the hypothyroidism following too extensive a removal of the thyroid.

Glandular therapy, as I have said, would be the natural therapeutic resource in the conditions which we have described as due in all probability to a diminished hypophyseal activity; but as yet no clinical cases of this sort have been recorded as consequent on a simple primary incompetence from atrophy of the gland, though such a condition doubtless occurs. As a matter of fact,

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they have only been described as an accompaniment of tumors in its neighborhood with secondary implication of the hypophysis through compression. Hence in many of these conditions of hypopituitarism, as well as in those of hyperpituitarism, there are definite indications for surgical intervention, and fortunately in many of the cases, especially those with delayed adolescence of the Fröhlich type, the damaging growth is a benign one, favorable for operation.

We must realize, too, that there may be a double reason for operating, in view of this frequent association of a local neoplasm with both of the conditions which we are considering. I have purposely refrained from making particular mention of the well-recognized local symptomatology of these growths in the infundibular region, for it is their effect on the hypophysis that I wish to emphasize, unobscured by other symptoms. Headache, of course, is often extreme in these cases—a form of cephalalgia produced by distention of the dural pocket enclosing the gland and consequently not relieved by the usual decompressive measures, as I have found to my discomfiture. Amblyopia from an optic atrophy which usually is primary—not secondary to a choked disc—is a still more serious and equally frequent manifestation of the local lesion. It appears in its most characteristic form as a bitemporal hemianopsia, though this is far from the most common type of partial blindness, inasmuch as one nerve is apt to be more seriously implicated than the other. Enlargement of the sella turcica is another valuable sign, one which need be expected, however, only in those cases in which the growth originates in or invades the glandular dural pocket. There are a number of additional signs of less moment.

Though these manifestations of a local tumor, whether primarily originating in the gland or secondarily involving it from pressure, have possibly been absent more often with hyperpituitarism (acromegaly) than with the reverse condition, we must remember that they may be common to both of them. These local tension symptoms may be completely relieved, as we have found to be the case with our acromegalic patient, by the simple incision of the dural pocket encasing the enlarged gland.

These things, of course, are quite apart from the treatment of the hypophyseal symptoms themselves, in regard to which the matter must likewise remain at present largely a surgical problem. This resolves itself, on the one hand, into partial removal of the hypertrophied gland or the glandular tumor when there are clinical manifestations of over-activity (acromegaly and gigantism); on the other hand, when there are evidences of under-activity (adiposity, either with infantilism or sexual degeneracy) into removal, if possible, of the tumor causing the compression, with supplementary organotherapy (anterior lobe administration) should the gland prove to have been injured by the operation or for other reason fail to resume its normal activity.

As has been the case with operations on the thyroid, we may expect a rapid perfection of the surgical methods of approach even to this far more inaccessible structure—the pituitary body; and depending on whether the growth largely occupies a distended sella turcica or lies above it in the interpeduncular region, the transphenoidal route, successfully followed in our case of acromegaly, or an intracranial route comparable to that employed by Horsley and used in our animal experiments, will prove to be the preferable one to follow.

SUMMARY

Two conditions, one due to a pathologically increased activity of the pars anterior of the hypophysis (hyperpituitarism), the other to a diminished activity of the same epithelial structure (hypopituitarism), seem capable of clinical differentiation.

The former expresses itself chiefly as a process of overgrowth—gigantism, when originating in youth, acromegaly when originating in adult life. The latter expresses itself chiefly as an excessive, often a rapid, deposition of fat with persistence of infantile sexual characteristics when the process dates from youth, and a tendency toward a loss of the acquired signs of adolescence when it first appears in adult life.

Experimental observations show not only that the anterior lobe of the hypophysis is a structure of such importance that a condition of apituitarism is incompatible with the long maintenance of life, but also that its partial removal leads to symptoms comparable to those which we regard as characteristic of lessened secretion (hypopituitarism) in man.

A tumor of the gland itself, or one arising in its neighborhood and implicating the gland by pressure, is naturally the lesion to which one or the other of these conditions has heretofore been attributed, though it is probable that over-secretion from simple hypertrophy, or under-secretion from atrophy, will be found to occur irrespective of tumor growth when examination of the pituitary body becomes a routine measure in the postmortem examination of all cases in which the conditions suggest one or the other of the symptoms-complex described.

When due to tumor, surgery is the treatment that these conditions demand, and at present there are reasonably satisfactory ways of approaching the gland; but clinicians and surgeons must clearly distinguish between the local manifestations of the neoplasm due to involvement of structures in its neighborhood other than hypophysis, and those of a general character from disturbances of metabolism due to alterations of the hypophysis itself.

3 West Franklin Street.

Penetrating Injury of the Brain.—W. A. Gills, in the *Virginia Medical Semi-Monthly*, May 7, 1909, reports the case of a man, aged 30, who shot himself with a 32-caliber revolver, the ball entering the right side of the head two inches behind the upper temporal ridge and one inch above the zygoma, traversing the frontal region, passing entirely through the bone of the opposite side (but not through the skin) at a point midway between the frontal eminence and the superciliary ridge, an inch to the outer side, a skin incision being necessary to remove it. About one hour after the shooting the patient was almost pulseless, with breathing very shallow, but conscious—recognizing voices. His eyes were so badly swollen that one was unable to recognize him; and because of the swelling, it could not be determined if there were any ocular changes present. Gills noted the presence of brain substance on the cheek. An incision of about an inch and a half was made through the skin and the ball removed without any trouble. Treatment was tentative and conservative. On removal of the dressing it was found that each wound extended to the brain. Drainage was put in each, an ice cap applied to the head, a mercurial purge given and the patient placed in a dark room under the care of a competent nurse. The head of the bed was elevated; a saline solution four ounces every fourth hour per rectum, ordered; the eyes cleansed with boric acid solution; the ears and nose irrigated with saline solution, and morphin given to induce sleep. No probing was done. The patient made a complete recovery except for slight impairment of the sense of smell.

Original Articles

OPTIC ATROPHY IN TABES

A DIAGNOSTIC SYMPTOM IN THE DIFFERENTIAL DIAGNOSIS FROM GENERAL PARESIS *

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Any point which can be discussed and which may in any way make the diagnosis of general paresis more positive, especially in its early stages, seems to me of value.

The earlier definition of general paralysis, its symptomatology and duration, would hardly apply to many of the cases which are included under the head of general paralysis to-day.

It has seemed to me that such cases which continue for five or even ten years must belong to another pathologic state that the type which pursues a course of three years with fulminant active symptoms ending in complete dementia, and often spinal symptoms involving both the lateral and posterior columns of the spinal cord.

The pathologic returns also in these former cases, i. e., those of long protraction, are not, to my mind, distinctive of general paralysis, but may also be found in other diseases marked by arterial degeneration as seen in chronic alcoholism, especially if associated with syphilis.

Many other points of differential diagnosis may also be suggested by the question as to whether tabes dorsalis and general paresis are one and the same disease.

Ferrier and others assert that the only difference is the part of the nervous system involved, the disease process being the same. I believe, however, that the conditions are distinctly different, no typical case of tabes ever passing into general paralysis.

This statement may appear extreme, but I think careful consideration will lead most of us, if we look back over our histories of the typical cases of tabes—the so-called classical symptom-complex cases—to conclude that they have never shown mental symptoms, while those which were perhaps diagnosed as tabes and have later developed undoubted evidence of general paralysis have been somewhat irregular in their spinal manifestations, probably ataxic paraplegia being present.

I believe that it can be positively asserted that in the cases of general paralysis which have apparently given the history of a preceding tabes—the so-called tabic general paralysis—the pathologic returns will show spinal cord changes more diffused than those found in typical cases of tabes. We find both the lateral and posterior columns affected in general paralysis, especially the former, while in tabes the lesion is more strictly limited to the posterior spinal ganglion, the posterior and Clarke's columns.

I have alluded in a paper read before the American Neurologic Association, at its last meeting in New York, to the comparative infrequency of pain in general paralysis and to the difference in type from that in tabes, if present—i. e., the absence of the lightning-like pains, the girdle-like or band-like pains, and especially the visceral crises—as a differential diagnostic point from tabes.

The non-tabic type of general paralysis, i. e., the classical form running its course in three years, is, in my experience, but slightly affected by these pains. I do not forget, in saying this, that there is great variation in the pain symptom in the typical cases of tabes.

Again, the involvement of the cranial nerves is not as frequent in general paralysis as in tabes—and this leads me to the special consideration of the subject referred to in the title of this paper.

In looking over my cases in private practice and those in my hospital experience, I find a very small proportion with optic atrophy unless associated with a previous history of irregular or non-typical tabes.

The statistics of optic atrophy give such varied reports from different writers as to the percentage both in tabes and in general paralysis as to be almost contradictory; they are, therefore, of little value.[1] This is evidently due to the fact that the cases coming before these individual observers have been only of a certain type. For instance, general paralysis, if seen in the early stages as found in a general hospital service, might show very few cases of optic atrophy; if, however, the cases are taken from the records of a hospital for chronic nervous diseases the percentage will be higher.

There is, again, very great difference of opinion as to the stage of the disease when optic atrophy appears in tabes. Some classify it as a very early symptom; others as a later appearance.

Again, some assert that in tabes its presence signifies a different type of tabes with either a cessation of progress of the spinal symptoms or as occurring in cases in which the spinal symptoms are never as prominent.

This, again, is denied by equally responsible observers. (Ferrier.) My personal opinion is that it has little or no bearing on the character or progress of the disease in tabes.

I have written to several of the physicians in the New York State asylums for the insane in regard to the frequency of optic atrophy in general paresis. Their reports in part support my views.

Dr. Louis C. Pettit, of the Manhattan State Hospital, Wards Island, states that in 1,000 males with general paralysis, complete atrophy existed in 28 cases, and incipient atrophy in 12 cases. In 200 females it was present in only 4 cases.

Dr. Robert M. Elliott, superintendent of the Willard State Hospital, says that in his nineteen years' experience he can recall only three cases of optic atrophy in general paralysis.

Dr. G. A. Smith, of Central Islip Hospital, states that it is comparatively rare, citing the pathologist of the hospital, Dr. J. W. Moore, as follows: In 100 males there were only two cases, and one of these patients had had tabes for some years before the onset of the general paralysis.

Dr. W. A. Macy, of King's Park Hospital, makes a like statement in regard to the infrequency of optic atrophy in general paralysis.

Dr. W. A. Holden reports in seventy carefully selected typical cases of general paralysis no instance of optic atrophy.

It is not my intention to quote other authorities. This paper is a clinical one and my object is to excite discussion and lead all observers in hospital and private practice to look into a subject which certainly up to the present time has not been very carefully studied.

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

1. Posey and Spiller (Dercum): The Eye and Nervous System, pp. 479 et al.

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This is, indeed, a preliminary report, which I shall make more complete in the future.

Under the head of general paralysis I feel convinced that too many diseases have been included, and within the next ten years we shall have differentiated and classified these various forms into several distinct diseases.

19 West Fifty-second Street.

ABSTRACT OF DISCUSSION

DR. CHARLES K. MILLS, Philadelphia: Dr. Fisher's statistics show the occurrence of optic atrophy in a considerable percentage of his cases of general paresis—about 40 in 800 or 1,000, and certain other low percentages. The occurrence of optic atrophy in tabes dorsalis is perhaps not more than 4 or 5 per cent. I have seen cases of optic atrophy in general paresis; they are reported by good observers and the other ocular phenomena of tabes have been of course extensively reported as occurring in paresis. Bevan Lewis, if I recall aright, has very elaborate records of all sorts of ophthalmic and ocular affections occurring in general paresis analogous to or identical with those occurring in tabes. I still feel like holding to the view that fundamentally general paresis and tabes are the same disease, and in saying this one needs not to say that tabes in regular form shall occur before the appearance of the paresis, or the reverse.

DR. C. B. BURR, Flint, Michigan: I have in my care a patient with paretic dementia with complete blindness for two years. The disease has run the ordinary course, extravagant delusions, motor symptoms, etc. Owing to focal symptoms present before the patient came under my care, suspicions of tumor or local lesion in the motor tract arose; but an operation brought to light nothing at all; and the case has been regarded since as a properly diagnosticated one of paretic dementia.

DR. GEORGE A. MOLEEN, Denver: I saw a number of cases of optic atrophy sent to the hospital and I asked Dr. Jackson if he could regard them as primary optic atrophy; he said they were often followed by symptoms of paresis even after a period as long as twenty years. One of these cases I was able to follow for some time. The patient showed nothing when sent down but the atrophy of the tabetic type. Four or five months later he had a typical epileptiform attack followed by an attack of mental disorder in which he had to be restrained; and a year following he had a typical apoplectiform attack and is now confined, probably permanently. I came to the conclusion that a good many of those patients with so-called primary optic atrophy ought to be watched rather carefully to see if this atrophy was not the first indication of a paresis.

DR. E. D. FISHER, New York: What has been stated by Dr. Mills is the generally accepted view. I have purposely put this in an extreme way. There are so many contradictory statements by different writers in regard to the condition of the eyes, as to the percentage of optic atrophy in tabes and general paralysis, that the subject is well worthy of reconsideration. In my private practice and in talking with others I find their experience coincides with mine, that ocular symptoms are comparatively rare in general paresis as compared with those which we find in tabes. Dr. Nonne states that the serodiagnosis gives quite a different report in tabes from that found in general paresis. Possibly that furnishes an additional proof that the two diseases are not one and the same.

Philadelphia's Public Playgrounds.—Philadelphia has an excellent system of public playgrounds, which is put into execution during the summer months. The schoolyards of the city are thrown open to the youngsters of the neighborhoods, swings, slides, games and all sorts of entertainment are provided for the little ones, and there are teachers and caretakers on hand to see that the fun proceeds along proper lines. There is even some slight attempt made at instruction, though nothing onerous is imposed on the little brains. The teacher reads stories that divert and instruct at the same time. The system has been found to be of such benefit that it will be extended along large lines.—*Hygiene and Physical Education.*

EPIBULBAR LEUCOSARCOMA

EXENTERATION OF ORBIT. NO RECURRENCE AT ORIGINAL SITE. DEATH IN THREE MONTHS FROM METASTASES*

CASEY A. WOOD, M.D.
CHICAGO

New growths on the eyeball, whether malignant or other, are so rare that a detailed history of an example of them seems worth while. I have been able to follow the course of a neoplasm of this kind almost from its beginning to its termination, and I take the liberty of reporting it.

Patient.—Miss J. O., aged 15, was referred to me Sept. 9, 1908, by Dr. F. W. Kettlestrings and Dr. H. S. Warren of Chicago, on account of a swelling of the right eyeball.

History.—She had had no trouble with her eyes except a slight discharge from them when a few days old, but this infection had lasted only a short time and had left no trace. From that time there was nothing particularly noticeable about her eyes until May, 1908, when the right lid became swollen. This was followed by an extension of the swelling to the eyebrow, after which it was noticed that the upper lid began to droop. Four weeks later the condition became decidedly worse and was shortly followed by pain in the eyeball itself. At that time she also noticed that any attempt to use the eye longer than half an hour—as in reading or studying—was followed by decided fatigue. Dr. Warren reported that the general health had been only fair, although the blood and urine, as well as the internal organs, were practically normal. She had been taking a simple iron and strychnia tonic. Her family history is negative so far as the occurrence of tumors is concerned and the patient has had none but the usual (infantile) complaints.

Examination.—On examination of her nose by Dr. Frank Brawley the patient gave a history of a yellowish-green discharge from the left nostril, but this had stopped before the eye trouble set in. She showed normal nares except a left posterior hypertrophy of the inferior turbinal. Coming to a nearer examination of the eyes vision of the left eye was normal; the patient read 6/5 minus and Jaeger 1, with good range. The sight of the left eye was 6/9 minus; Jaeger 1, not so well as on the right side. The fundi in both eyes were entirely normal. There was an apparent protrusion of the right eye. On raising the upper lid, which was distinctly swollen and covered about one-half the pupil, there was exposed a large, tense, semitransparent swelling which involved about one-half of the upper aspect of the globe. On digital examination, the tumor gave an elastic sensation and showed that it was in all probability confined to the superior bulbar surface and did not extend posteriorly. It was slightly tender to the touch, but the conjunctiva covering it was entirely smooth and non-adherent to the growth beneath. There was no true proptosis, although the globe and lids seemed more prominent than on the opposite side. The excursions of the eyeball were as extensive in the affected eye as in the normal eye. There was no evidence of changes in the cornea or in the sclerotic or overlying conjunctiva for 5 mm. around the sclerocorneal junction, and on using the ophthalmoscope there seemed to be, so far as it was possible to see, no involvement of the anterior segment of the internal eye. The new growth was apparently quite circumscribed, attached to the sclerotic but did not to any appreciable degree involve any portion of the conjunctiva. The right preauricular gland was rather hard, well-defined and slightly prominent. The corresponding submaxillary and anterior cervical glands were more easily outlined on the right side than on the left.

Roentgen Examination.—An *x*-ray picture of the orbital contents and neighboring cavities showed that there was no bone enlargement and probably no extension of the tumor mass be-

* Read in the Section on Ophthalmology of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

hind the eyeball; indeed, the ocular swelling seemed during the whole time of observation to be confined to the upper half of the globe and to diminish in volume below the equator. A number of further observations were made of the neoplasm. Dr. Reichmann made several skiagrams and believed that the *x*-rays indicated an orbit on the right side freer of skiagram shadows than the left orbit.

Diagnosis.—The Calmette test gave a negative result in the opposite eye. That the patient might have the further benefit of any doubt, very large doses of iodid of potassium were given, in conjunction with pilocarpin sweats, for two weeks, with but slight benefit, except perhaps some reduction in the prominence of the preauricular gland. Under these circumstances and since the tumor showed a smooth surface, appeared to be circumscribed, was of elastic consistency, whitish in color and was associated with a preauricular enlargement, a diagnosis was made of probable subconjunctival leucosarcoma arising from the tissues about the superior rectus insertion.

Microscopic Examination.—To settle the question, under a general anesthetic a section of the tumor was removed on Oct. 1, 1908, and examined by Dr. Dagg of the Chicago Laboratory. His report is as follows:

"The tissue has the appearance of a small round-celled sarcoma. There are no well-formed vessels. One margin of the section shows diapedesis of red cells into the tumor mass. Mitosis of the cells not noticed."

The wound of operation healed kindly in a few days.

Although the right preauricular gland seemed to be less swollen after the treatment just outlined the group of glands at the angle of the jaw shortly became more prominent. In consultation with Dr. A. E. Halstead and after considering the *pros and cons* of the case, it was decided to do a combined exenteration of the orbit, with removal of the enlarged preauricular, submaxillary and cervical glands; in fact, of all the grandular tissue that seemed to be affected by the disease. On October 8, with the assistance of Dr. Halstead, this operation was successfully carried out.

Postoperative History.—On October 20 the skin incision involved in the removal of the extraocular glands had closed nicely and the patient did not complain of pain either in it or in the exenterated orbit.

Oct. 29, 1908: The patient left the hospital for her home. For some weeks after the orbital exenteration the Roentgen rays were used, as a remedial measure, within the orbital walls.

Dec. 29, 1908: The patient was able to go out of doors and was apparently doing well. The orbital wound showed no recurrent deposits and the external wound of operation had entirely healed.

Pathologic Report on Tumor.—From the pathologic department of St. Luke's Hospital I obtained the following report on the removed preauricular and submaxillary glands:

"The mucous glands from both sides show infiltrations of round cells about the ducts, corresponding to the small round cells of the primary tumor of the orbit, and are, therefore, to be regarded as metastatic small round-cell sarcomata."

I am indebted to Dr. Francis Lane for a report on the orbital mass which, of course, includes the eyeball, most of the conjunctiva and other tissues of the orbit.

"Gross Findings: Right eye; bulb collapsed with furrow horizontally across the cornea (globe injected with formalin 4 per cent.); mass of orbital fat surrounds a 9 mm. long optic nerve and extends forward to superior rectus; superior rectus severed 26 mm. back of corneal margin with cut surface, oval, 7x14 mm.; circular cut of conjunctiva varying from 9 to 11 mm. from limbus; upper inner quadrant of conjunctiva brownish color, wrinkled and folded, apparently much thickened and immovable over underlying sclera; bordering upper one-half of cornea the conjunctiva *bombé*-like and slightly overlaps superior quadrant of corneal margin; an irregularly shaped central defect of corneal epithelium. Deep in cornea are number of zigzag, for most part horizontally directed, narrow striæ [posterior to horizontal corneal groove and due to collapse (?)]; superficial, uniform, moderate corneal haze somewhat obscures an apparently normal anterior chamber and anterior iris surface; pupil round, 3.5 mm. diameter; lens opaque [postmortem (?)].

"Coronal Section: Anterior segment—sclera thinned; upper one-third of cut surface shows sclera covered with a closely adherent 0.5 mm. thick, firm, pinkish layer, from which capsule and conjunctiva can be easily stripped, leaving behind very delicate strands of connective tissue [Tenon's space (?)]. Lens yellowish-white and slightly translucent with transmitted light. Vitreous streaked and filled with innumerable very fine highly refractile particles (not crystals, but globules as shown under microscope). Posterior segment: retina very white color, cloudy vitreous hides details of disc head; inner lower half of sheaths of optic nerve thickened to 3 mm. and movable over nerve trunk.

"Anatomical Diagnosis: A small, round-celled sarcoma. The tumor cells always appear to surround the blood vessel walls or to lie in the perivascular lymph spaces and are never found within the lumen of the blood vessels themselves."

Remarks.—The last time I saw the patient she seemed very well. It was evident there was no recurrence of the neoplasm either in the orbit or in the neck or lower jaw. However, in March, 1909, the family physician reported to me that although she had had several attacks of *malaise* of apparently trivial import, she was quite well until the end of January when, after some obscure symptoms referable to her abdomen, she died rather suddenly of what Dr. Warren believes to be an abdominal metastasis, without the slightest appearance of the tumor in its original locality. No autopsy.

Anyone examining the bibliography of epibulbar tumors will find that, although the sarcomata are probably the commonest of the malignant forms, they are not so common as one might at first imagine. LaGrange[1] gives full references to all of these new growths described to the year 1900.

72 Madison Street.

ABSTRACT OF DISCUSSION

DR. MELVILLE BLACK, Denver: I have never had a case of epibulbar sarcoma of the eye; therefore, I do not feel qualified to speak of this case from personal experience. Dr. Wood is to be congratulated on having acted so promptly and for having performed so radical an operation. He is gifted with an unusually large amount of personal magnetism, and we must attribute to this happy faculty his having gained the consent of the parents to the early operation which undoubtedly prolonged the girl's life and enabled her to enjoy it to the last without pain. It is to be regretted that an autopsy could not have been held and the cause of death determined. From a scientific aspect, it is unfortunate that the girl could not have lived longer in order to know whether the growth would have returned at a point near the site of the former disease.

DR. GEORGE F. KEIPER, Lafayette, Ind.: According to Parsons in his "Pathology of the Eye," to 1904 there were only 80 cases of epibulbar sarcomata reported. The first was by Baumgarten in 1852, in which he differentiated it from "cancer." The non-pigmented variety numbered but 12. Parsons further states that sarcomata in other parts of the conjunctiva are very rare. It has fallen to my lot to have seen a spindle-cell sarcoma at the inner canthus of the eye and adherent to the eyeball. Though the eye had fair vision, the patient, a woman of 50, accepted the advice to have the orbit exenterated, leaving the eyelids, which did not seem to be involved. At the time of the operation it was a question as to whether the growth might not be also epithelioma. The subsequent microscopic examination showed its true nature to be sarcoma. Over ten years have elapsed with no recurrence. These patients are reported to be usually old. But three other reporters, Krautner, Benson and Schultze, report three cases in which the patients were 14 years and under. Dr. Wood's case, therefore, belongs to that group noted for its extreme rarity at the age of 15, as well as that rare variety of non-pigmented sarcomata.

1. Traité des Tumeurs de l'Oeil, vol. I, pp. 237 to 246.

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THE MANAGEMENT OF ACUTE HEMORRHAGIC GLAUCOMA IN THE PRESENCE OF ADVANCED ARTERIOSCLEROSIS

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DEFINITION OF HEMORRHAGIC GLAUCOMA

A glance through recent ophthalmic literature would seem to show that there is some difference of opinion as to what hemorrhagic glaucoma is. It therefore appears proper to preface these remarks by a definition of the term "hemorrhagic glaucoma," as I understand it, as follows:

This disease presents the usual symptom-complex of acute glaucoma, occurring suddenly in an eye in which retinal or other intraocular hemorrhages have previously occurred before any glaucomatous symptoms were present. In brief, the hemorrhages are the exciting cause. I believe that this condition should be differentiated from a pre-existing glaucoma in which hemorrhages have occurred subsequently. Clinically, an operation might be indicated in the latter class of cases, but would not only be valueless but positively injurious in the former class.

The predisposing cause in every case is probably general arteriosclerosis. Hemorrhagic glaucoma is always caused by the intraocular hemorrhages, but these should be looked on as a local expression of disease of the general vascular system.

Most of the cases occur between the ages of 50 and 70, and the constant accompanying condition is general arteriosclerosis. Fundamentally, the primary reason for the outbreak is the loss of balance between the general blood pressure and that of the eye, and this leads naturally to a consideration of the subject of increased blood pressure, or, more correctly, of chronic arterial hypertension. In any attempt to define the relations existing between arteriosclerosis and arterial hypertension it should not be forgotten that there is no exact correspondence between the pathologic changes in the vessels and the clinical phenomena. It should also be remembered that the blood pressure is greater when the blood stream is slow, and hence the rapidity of the blood current is a factor to be considered in these cases.

DISTINCTION BETWEEN ARTERIOSCLEROSIS AND ARTERIAL HYPERTENSION

We should draw an absolute distinction between arteriosclerosis and arterial hypertension, though we may recognize the relation of cause and effect. The arteriosclerosis encountered in cases of hemorrhagic glaucoma is of mechanical origin, the result of long-persistent high blood pressure, and presents an actual pathologic alteration of tissue in the vascular walls. On the other hand, arterial hypertension is a cardiovascular condition, the perverted action and abnormalities of which we are now able to recognize; and by the correction of these perverted activities it may in the future be possible by the regulation of the habits of life, by diet and by proper administration of drugs, to prevent or limit the development of arterial degeneration. The earlier this condition of chronic arterial hypertension is recognized and its importance properly estimated, the better we shall be able to correct its destructive tendencies, for the functional perversion of vascular tension is amenable to treatment, and thus the real pathologic condition known as arteriosclerosis may be prevented.

If by giving a vasodilator drug we relieve some of the unpleasant or dangerous symptoms in a case of arteriosclerosis, we effect no permanent benefit in the diseased condition of the arteries, but simply correct the hypertension. How much more valuable would this treatment be if undertaken before the arterial degeneration had begun: We are now able to estimate accurately the degree of hypertension, and can follow it up and regulate its progress and tendencies; and before long we may be able to state that the advance of old age is in inverse proportion to the pulse tension.

This relationship of arterial hypertension and arteriosclerosis is a complex problem, which is by no means easy of solution. In some of the smaller arteries the arteriosclerosis seems to cause an increase in the tension through increased peripheral resistance. Another apparently contradictory fact mentioned by Broadbent is that patients with very marked hypertension do not generally live long enough to develop a high degree of arteriosclerosis.

As regards the etiology of this hypertension, it would seem that heredity is a considerable factor, especially in males. Mental strain is very influential in developing hypertension, as is constantly seen in patients subjected to continual care and anxiety. The pathologic changes noted in connection with this condition are cardiac hypertrophy and dilatation, hyperplasia of the tunica media, and later the arteriosclerotic kidney and advanced general arteriosclerosis with enfeebled cardiac action.

In endeavoring to understand the real pathology of this complex condition we must differentiate between arterial contraction and the blood pressure. We must be able to decide whether the thickening of the arterial coats is an apparent thickening, due to hypertension, or whether the change is real and due to actual arteriosclerosis. The hypertonus is not confined to middle and later life, but is met not infrequently in early life. Here it may produce no symptoms of which the patient is aware, because of the greater elasticity and endurance of youth. Russell has well said that even in vigorous persons with sound cardiac action, hypertonus leads at once to heightened blood pressure and increased arterial tension. But hypertonus occurs in people with enfeebled heart action, and to this class belong the elderly patients with hemorrhagic glaucoma. In the former class any temporary excitement causes increased cardiac action and increased blood pressure, but as soon as the one subsides the other disappears. In the latter class the thickened arteries are associated with a low blood pressure, for these patients have no margin of reserve force in their hearts.

TREATMENT

With this brief description of the two differing conditions of arterial hypertension and arteriosclerosis, and the probable relationship of cause and effect existing between them, I ask attention to the subject of the paper: How shall we best manage these cases of hemorrhagic glaucoma, associated with advanced arteriosclerosis?

As before stated, these patients are between 50 and 70 years of age. The high blood pressure, with the increased vascular tension found in these patients, tends to raise the intraocular tension beyond the normal limits and well within the danger zone, and then the slightest exciting cause may bring about a retinal or vitreous

* Read in the Section on Ophthalmology of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

hemorrhage, which in its turn precipitates an attack of glaucoma. If the patient is hypermetropic, with shallow anterior chamber, the more or less complete obstruction of the channels of filtration is almost certain to occur, ending in the explosion of acute glaucoma. Now the classical operation for acute glaucoma is iridectomy, but we all know what has been the well-nigh universal experience of the results of iridectomy in hemorrhagic glaucoma. The sudden lowering of the intraocular tension almost invariably causes a sudden profuse intraocular hemorrhage, either subretinal or into the vitreous, which again increases the tension above the normal, the return of the severe pain, which can not be controlled, and ultimately necessitates the removal of the eyeball. Moreover, the operation of iridectomy on an inflamed eye is excessively painful and can not be done under cocain anesthesia, but demands general anesthesia. We are thus brought face to face with the actual dominating feature of the situation. These patients with extensive cardiovascular changes, with cardiac hypertrophy, enfeebled heart action and brittle arterioles, are not fit subjects for general anesthesia, because of the danger of a fatal termination. I believe that no operation, whether iridectomy or sclerotomy, which requires general anesthesia should ever be done in a case of hemorrhagic glaucoma in which the extensive cardiovascular disease makes the use of general anesthesia dangerous to the life of the patient. We have other means at our disposal for allaying the pain, reducing the increased tension and arresting the glaucomatous process, even though the eye remains permanently blind.

The immediate treatment for the relief of the urgent symptoms is the same for all these cases, but the subsequent management must vary with the age and general condition of the patient and his environment.

The immediate local treatment which I employ in these cases of hemorrhagic glaucoma, in order to avoid the dangers of an iridectomy, is as follows: Under the influence of a 10 per cent. solution of cocain, instilled as often as may be necessary, a careful paracentesis of the cornea is done, the instrument being withdrawn very slowly, and thus the aqueous humor is allowed to flow out only drop by drop from the anterior chamber. In this manner the intraocular tension is lowered very slowly, and the danger of the occurrence of an intraocular hemorrhage is reduced to a minimum. Two or three leeches are then applied to the temple and allowed to fill themselves until they drop, or the Heurteloup wet cup may be used, and the bleeding kept up as long as may be necessary. Then a solution of eserin sulphate, one grain, and pilocarpin hydrochlorate, four grains to the ounce is instilled every hour, until under the combined influence of the paracentesis, the local bleeding, and the miotics, the eye softens and the pain grows less. As the intraocular tension subsides and the intravascular tension diminishes the pain grows less and the instillation of the miotics may be less frequent. Then the patient is directed to have hot applications made to the eye for half an hour at a time, and to repeat them every two hours until the pain has gone. He is also directed to take twenty drops of the fluidextract of Jaborandi three times a day, as a valuable additional means for lowering the intravascular tension. Hypodermic injections of pilocarpin will bring about the same result, but in the presence of advanced cardiac disease they are dangerous. It is sometimes necessary to repeat the paracentesis of the cornea several times in the same careful way at varying intervals, but eventually the end is accomplished.

As the symptoms subside the use of the miotics may be reduced to two or three times a day, and then the all-important subsequent management of the patient begins. This must vary with the age and general conditions of the patient and the severity of the type of lesion. The habits of life must be regulated, being modified in strictness by the patient's general condition and environment. It must be largely dietetic, based on accurate knowledge of the patient's digestive capabilities. The administration of drugs, except to combat certain symptoms as they arise, is of secondary importance. The daily life of the patient should be rendered as quiet as possible, and there should be great moderation in eating and drinking. As an abundant meat diet raises the blood pressure, the amount of meat eaten should be strictly limited. For some of the patients a certain definite amount of systematic exercise, preferably walking in the open air, should be insisted on, because it increases oxidation, improves the capillary circulation and aids in the process of elimination. If the patient has been addicted to the use of alcohol in moderation, it is not wise to interdict it, but it should be taken largely diluted, for while dilating the peripheral blood vessels, it does not increase the blood pressure to any appreciable extent. Tobacco should be forbidden or only slightly indulged in, because it contracts the blood vessels and raises the blood pressure. Water should be drunk freely between meals in order to aid elimination. The products of faulty metabolism which induce hypertension only exercise their toxic effects while in the circulation. The uric acid group are largely eliminated through the kidneys, and the best renal eliminants are the salts of soda, potash and lithia. Each patient should be carefully studied for himself, and the dietetic and therapeutic management varied according to the necessities of the case. In many of these patients the arteriosclerosis has forced the heart to do an excessive amount of work, and at the slightest additional burden the heart may collapse in spite of the administration of a cardiac stimulant. If the general symptoms are severe the first necessity is rest in bed, and this must be enforced if we are to expect any improvement. Muscular exercise often produces temporarily a rise in vascular tension, and complete muscular rest in bed removes the additional strain and gives the heart a chance to recover its tone. I believe that in many, if not in all, these chronic cases in high-strung nervous individuals, the cardiovascular sedatives ordinarily employed are almost useless unless rest of the body in bed is insisted on.

To reduce the high blood pressure I employ sodium nitrite as a vasodilator, but always in combination with some reliable heart tonic. It is a wise precaution to have a thorough examination made of the heart and general circulation before prescribing any cardiac drugs, especially the vasodilator drugs. A rapid, irregular or intermittent pulse, with a rapid pulse rhythm, and with a systolic murmur, probably indicate a cardiac inadequacy with high blood pressure, and in such a condition cardiac stimulants should be combined with vasodilator drugs. A high blood pressure does not necessarily mean the need of the prompt administration of drugs, for Nature often maintains a cardiac integrity, in spite of the circulatory resistance, and the apparently urgent symptoms yield gradually without the use of drugs to reduce the pressure. If the blood pressure be over 200

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millimeters of mercury, the vasodilator should be slowly administered and its effect on the blood pressure, the pulse rate, and the sensations of the patient carefully noted. The subjective sensations of the patient are often a better means of judging of the effect produced than the blood pressure or the pulse rate. The administration of a full dose at once might cause very serious consequences to the patient's heart.

I have tried the systematic employment of hot baths, as recommended by Hirschfeld, but with indifferent success. The hot bath changes the distribution of the blood pressure by unloading the internal organs and increasing the vascularity of the skin, and should afford prompt relief from pain. It also increases the elimination of waste products. But we must note very carefully the reaction of the patient, and it is not safe to begin with a temperature of more than 100 degrees. The duration of the bath should not be over ten minutes. Of course, the deciding factor in the application of the hot bath should be the condition of the heart and the quality and distinctness of the first and second aortic sounds. Without a fairly vigorous heart the hot bath must be very cautiously employed.

Following the suggestions of Erlenmeyer and Fraenkel, I aways give the patients some preparation containing iodin to reduce the viscosity of the blood. Either potassium iodid or sodium iodid, by diminishing the frictional resistance of the blood current, causes a diminution of the obstruction to the circulation and brings about better nutritive conditions in the parts. I give the potassium iodid in progressively increasing doses, changing to sodium iodid when the stomach revolts, and continue the use of the one or the other drug for a period of weeks or even months. When the administration of these drugs must be suspended for a period I advise the patient to take in the interval two or three drops of a 1 per cent. solution of nitroglycerin.

47 West Thirty-sixth Street.

ABSTRACT OF DISCUSSION

DR. MYLES STANDISH, Boston: I agree with the definition of hemorrhagic glaucoma given by Dr. Bull, with the proviso that the hemorrhages preceding the glaucomatous condition are more often retinal than otherwise. Dr. Bull, if I read this paper aright, considers the kidney lesions of which he speaks to be the result of arterial hypertension. That this is the general rule I do not believe. Many competent observers think that all cases of hypertension of the arterial blood current have their origin in pre-existing kidney lesions of the interstitial type. Whether this is true or not is somewhat difficult to prove, owing to the difficulties of diagnosis in the early stages of the disease, but I am firmly of the opinion that all cases of hemorrhagic glaucoma should be treated as if the presence of such kidney lesions had been proved in the management of the cases included with the definition of the writer I am in entire accord. Rest, quiet and an equable climate are always to be desired. An iridectomy is nearly always unfortunate, and if the victims of this distressing condition are to be relieved of pain, the intraocular tension permanently diminished, and an enucleation with its subsequent disfigurement and discomforts avoided, it must be accomplished by the methods outlined by the reader. I have seen repeated paracenteses succeed even in cases of great persistency. I remember in the practice of a colleague seeing a paracentesis done twenty-four times with an ultimately quiet eye.

In regard to the medical treatment I have nothing to add except that I have made use of the inhalation of amyl nitrite with advantage in some cases. We can not expect by these means to avert an enucleation in every case. An explanation of this fact is perhaps offered in a recent case of my own, in which, after the eye was removed, it was given to Dr. Verhoeff for examination. He reported to me that there was such a sclerosis of the canal of Schlemm that it amounted to the obliteration of that important channel. If that fact is approximately true in all these cases, it may be that the efficacy of repeated paracentesis depends on the subsequent formation of scars which permit of filtration and that this is the explanation of the permanent reduction of tension in many of these cases. It is not necessary that the tension should be normal in order to give relief from the symptoms. Comfort is not inconsistent with a slight increase of tension.

DR. MELVILLE BLACK, Denver: I would like to emphasize what Dr. Bull has said regarding the necessity of having a thorough examination made of the heart and general circulation before administering any drugs. It would be different if we could always be sure that vitreous hemorrhage was attended with high arterial tension, but my experience has been that these hemorrhages frequently occur in the presence of subnormal arterial tension. The treatment of low and high tension is very different. If drugs are given empirically, it may be that vasodilators would be given when low tension exists and the condition thereby made worse. Within the last few years I have had several of these cases, and among the number were two cases of vitreous hemorrhage with secondary glaucoma. The blood pressure in one case was 250 and in the other 105. In both cases one eye was lost. These patients are still living. The one with low tension retains very good vision in the remaining eye, but within the last few months there have been a few retinal hemorrhages, and this was the condition which preceded the vitreous hemorrhage which destroyed the other eye. In consequence, the patient is somewhat worried at the present time. The other patient has been under observation for something like five or six years, one eye being lost from a vitreous hemorrhage, causing secondary glaucoma. The fellow eye soon began to have a number of recurring hemorrhages scattered throughout the retina with symptoms of optic nerve disturbance, such as described by Dr. Bull some years ago from the pressure of the hardened central artery where it penetrates the optic nerve. The patient had a small scotoma which extended over the macular region and put out central vision. That eye, however, has remained free from an attack of glaucoma from vitreous hemorrhage, and I attribute this as well as the man's fair general health to the lowering of the blood tension to within safety limits. In high tension cases I think the diet should be exceedingly simple, largely vegetable, and even in the presence of interstitial nephritis we often keep these patients alive considerably beyond the period of two years, which we used to consider the limit.

DR. EDWARD JACKSON, Denver: With reference to arteriosclerosis in connection with hemorrhagic glaucoma, it ought to be borne in mind that it is frequently, and for a long time, a localized process. This is true of the larger vessels, as examined postmortem; and it is illustrated in every case examined with the ophthalmoscope. Certain portions of the vessels show advanced sclerosis, and others seem comparatively free from it. Hence, while there may be marked retinal evidence of arteriosclerosis in one case, it may not be detected in another, yet the general condition of the choriodal vessels may not be essentially different in the two cases. With reference to blood pressure, probably more extended observation will show that nearly all of our patients with primary glaucoma have high blood pressure. In all in whom I have taken the blood pressure this was shown; and within the last year Frenkel reported fifteen cases, in fourteen of which the blood pressure was notably high. So that discovering retinal hemorrhage and evidence of arterial sclerosis in the retina, along with an abnormally high blood pressure, does not take a case of glaucoma entirely out of the category or separate it very widely from other primary glaucomas.

About six months ago I obtained satisfactory results from an iridectomy in a patient with an enormous number of widely diffused retinal hemorrhages. The blood pressure was 175 mm. during the acute pain, and 185 mm. when the patient was free from pain; and yet the iridectomy was not followed by any serious complication and led to a permanent

reduction of the intraocular pressure. In these cases posterior sclerotomy has not been mentioned. I think it is equal, probably superior, to paracentesis of the anterior chamber. It opens the chorioidal vessels, and I think undoubtedly temporarily reduces the blood pressure in the veins and locally in the arteries of the chorioid; and the patient perhaps has a better chance on account of not having a subsequent hemorrhage.

With reference to the operations that have been mentioned, I want to call attention to the formation of new veins in the scar. In the case I mentioned I had done a posterior sclerotomy and the iridectomy was not done for about three weeks afterward. The sclerotomy scar bulged until it was 5 or 6 mm. in diameter and stood out 4 mm. from the general level of the sclera. Ultimately that scar showed a bunch of veins that have the capacity of all the veins usually found perforating the sclera in a senile eye. I think this formation of veins after a cyclodialysis, after iridectomy and after sclerotomy may have an important influence in the permanent reduction of tension. Of course, diet and general regimen are of the greatest importance, and I think we can not have it too much impressed on us. I think that probably the recent work of Bordley and Cushing makes the reduction of blood pressure by nitrites problematical. I have never seen any marked lasting benefit from them.

DR. F. H. VERHOEFF, Boston: I think the pathology will throw some light on the treatment of this condition. I admit that it is not altogether fair to draw conclusions from eyes enucleated, but my statements are based on them. Dr. Bull states that hemorrhagic glaucoma is due to intraocular hemorrhage. The pathologic examinations do not bear this out, because in typical cases there are no hemorrhages in the vitreous, but only in the retina. The retinal hemorrhages and the glaucoma are due to the same cause, which in most of the cases carefully examined has been obstruction of the central vein by endophlebitis. So that the glaucoma is really the result of edema of the retina and vitreous. Just whether this is due to the fact that the vitreous becomes loaded with albumin and can not filter off readily through the canal of Schlemm, or whether due to the high osmotic pressure set up is uncertain. In view of the cause of the condition it does not seem that treatment could have much effect on vision. All that can be attempted is to keep the eye in the patient's head, and also to combat the general vascular disease by measures which I think are unfortunately not often successful.

DR. R. L. RANDOLPH, Baltimore: In a paper fifteen years ago I reported three cases of hemorrhagic glaucoma treated by paracentesis of the vitreous. The first patient was a woman of 52, who came to me with a number of superficial hemorrhages scattered over the retina of one eye. The diagnosis was made of hemorrhagic retinitis, due probably to arteriosclerotic changes generally. Six weeks later, high tension developed, associated with intense pain. It struck me immediately as a case of the so-called hemorrhagic glaucoma. An iridectomy gave relief for ten days, when the pains returned and in a most unmanageable form. I then adopted the following measure: A Graefe cataract knife was introduced into the vitreous about half way back and about one-fourth of the length of the blade. The knife was introduced in three places, just above the external rectus, just a little to the inner side of the superior rectus, and the last puncture was made a little below the internal rectus. Of course, all punctures were made at one sitting and under cocain and apparently with little or no discomfort. This gave her complete and permanent relief. She died ten years later of chronic nephritis. The eye at the time of her death was somewhat smaller than its fellow. The second case was in a woman of 38 who developed changes in the retina following pregnancy, and a month after I first saw her she was suffering with acute inflammatory or what I regarded as hemorrhagic glaucoma. In this case paracentesis of the vitreous in the manner described gave relief. The third patient was a man of 70, and here the operation failed utterly. This, too, when first seen was a typical example of hemorrhagic retinitis of one eye which some weeks later developed high tension. In my opinion, the operation is a harmless one and is calculated, judging from this limited experience, to relieve pain and preserve at least in the comely eye.

DR. D. W. GREEN, Dayton, Ohio: I have carefully kept records at the National Military Home of 700 observations of blood pressure in men above 60 years of age. I have not the figures before me, but my recollection is that I have never seen acute glaucoma with normal blood pressure. The patients I have seen have always had a blood pressure above the standard, which I have established for that age at 160 mm. of mercury.

MORPHEA-LIKE EPITHELIOMA *

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Although the form of epithelioma about to be described in this paper presents such peculiar clinical features, it has not yet, so far as I know, been mentioned in text-books of surgery and is only very briefly alluded to in but one text-book of dermatology. I have, therefore, thought it might be of some interest to call attention to it very briefly and to report some illustrative cases which have come under my observation in the past few years.

CASE 1.—In October, 1902, Mr. H., 50 years old, consulted me for an affection of the skin situated on the face just beneath the malar eminence, consisting of an oblong, yellowish-white, somewhat depressed patch about three-quarters of an inch long by one-half inch wide, having at its upper border a split-pea-sized ulcer with slightly elevated and thickened edges. The patient stated that the patch had existed for four or five years, but ulceration had begun only two years previously. The disease was unattended by any marked subjective symptoms, but its steady spread and the appearance of ulceration led the patient to seek advice. The lesion was so extremely like morphea in many of its features that notwithstanding the ulceration, such a diagnosis was made, although the possibility of epithelioma was not overlooked. After the failure of other forms of treatment to effect any material change in the lesion it was subjected to the *x*-ray, and under this treatment the ulcer rapidly healed in the course of two months and the entire patch almost, but not completely, disappeared. Some two or three years later there was a slight recurrence in the shape of a small scaly nodule which was unmistakably epitheliomatous.

The second case was remarkable not only on account of the peculiar features presented by the lesion, but also because of its situation and the early age at which it made its appearance.

CASE 2.—Jennie M., aged 24, came to the Skin Dispensary of the University Hospital in March, 1902, seeking advice for a lesion situated on the left side of the thorax in the axillary line, on a level with the breast. This lesion, which was of four years' duration, consisted of a waxy-looking, yellowish-pink oval patch about two and one-half inches long by one inch wide, its long axis parallel with the ribs, with a rounded, slightly elevated border over which ran numerous fine blood vessels arranged radially. The center of this patch was occupied by an almond-shaped ulcer with sharp edges which had made its appearance about three years after the beginning of the affection. There were no subjective symptoms worth noting. The patient had been under treatment at various hospitals, and various diagnoses had been made, but epithelioma had not been included among them. During the year or more in which the patient was under more or less continuous observation there was practically no change in the appearance of the lesion except that the ulcer had slightly increased in size. After the failure of various methods of treatment to

* Read in the Section on Dermatology of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

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bring about any noticeable improvement, the patient was urged to permit excision, but she declined this, and soon ceased attendance at the dispensary. Six years later she reappeared with the site of patch occupied by an extensive linear cicatrix which she said was due to prolonged *x*-ray treatment given at another hospital, and in this cicatrix was a small nodule which microscopically presented unmistakable signs of carcinoma.

The third case was of special interest, because the clinical diagnosis of epithelioma was confirmed by microscopic examination, a procedure which was not possible in the two previous cases because of the unwillingness of the patients to permit the excision of a portion of the growth; it was also interesting because it was a close copy in many respects of the first case published, a beautiful model of which is in the museum of the St. Louis Hospital, Paris.

CASE 3.—C. N., female, unmarried, aged 50, an inmate of a home for blind women, was referred to the skin dispensary of the University Hospital by Dr. William Evans, the attending physician of the home, for an opinion concerning an affection of the skin of the forehead which consisted of a yellowish-pink, slightly elevated, round, smooth plaque about the size of a silver half-dollar, extending from the root of the nose up over the forehead, the border covered by numerous fine vessels running toward the center of the patch, which gave it a distinctly violaceous hue. At the root of the nose was a deep, irregularly quadrilateral ulcer with sharp edges. The disease had begun some five or six years previously, and, according to the statement of the patient, had followed immediately on a blow. A clinical diagnosis of epithelioma was made, and a small piece was excised from the edge of the ulcer and submitted to microscopic examination; this examination fully confirmed the clinical diagnosis, showing the growth to be an epithelioma of the baso-cellular type. But while it was easy to demonstrate the epitheliomatous character of the lesion, nothing was found in its histology to explain its peculiar clinical features.

To these three cases should probably be added a fourth, seen in the University Skin Dispensary, ten years or more ago, in which a diagnosis of ulcerating morphea had been made. The patient was a woman, 40 years old, who had a flat, round violaceous, somewhat depressed patch on the tibia just below the patella, with a small ulcer at the border. Owing to the scantiness of the notes of the case, details are lacking, and, as the woman soon disappeared from observation, the further course of the affection is unknown; but from later experience I feel assured that this case probably belongs to the group of cases here described.

The first reference in medical literature to this peculiar form of epithelioma is to be found in the *Bulletin de la Société française de dermatologie et de syphiligraphie* for 1899.[1] At the séance of July 13 of that year Danlos presented a man who had on the nape of the neck a round plaque 6 cm. in diameter, having a ring-like border about 1.5 cm. broad of a yellowish hue, traversed by numerous vessels which ran from the periphery toward the center of the plaque. Around this slightly elevated ring was a lilac-colored zone, while the central portion showed an irregular, ulcerated surface. A biopsy demonstrated the epithelial character of the lesion, and the case was exhibited as one of epithelioma simulating morphea or xanthoma. In the discussion which followed the presentation of this case, Brocq stated that he had seen two similar ones. At the clinical meeting of the American Dermatological Association, held in Philadelphia in June of the same year, Stelwagon[2] presented a case of "flat epithelioma of the temporal region with a superficial inch-wide border resembling morphea"; and this same author briefly alludes to the possibility of epithelioma resembling morphea in his treatise[3] on diseases of the skin.

In the third edition (p. 1012) of his well-known work on diseases of the skin, Crocker refers to a case of rodent ulcer, unique in his experience, which was quite certainly an example of morphea-like epithelioma. On the temple of a woman was a lemon-yellow, slightly elevated plaque the size of a shilling, with a few small vessels running over it centripetally, which had begun as a hemp-seed-sized white spot when she was 35 years old. Three and one-half years later, when ulceration had taken place, the growth was excised and found to be a typical epithelioma of the rodent ulcer variety. Crocker states in a note that when this case was exhibited at the International Dermatological Congress in London, in 1896, no one was able to make a diagnosis.[4]

In a paper[5] read before this Section, at Chicago, in 1908, Fordyce refers very briefly to a case of tricho-epithelioma which "presented the clinical appearances of a morphea without a suggestion, macroscopically, of a tumor formation."

The foregoing are the only references in literature to this peculiar and interesting form of epithelioma which I have been able to find.

3644 Chestnut Street.

1. Ann. de dermat. et de syph., 1899, x. 656.
2. Stelwagon: Tr. Am. Dermat. Assn., 1899, p. 166.
3. Stelwagon: Diseases of the Skin, ed. 5, p. 819.
4. I am indebted to Dr. George Pernet for directing my attention to this case.
5. Fordyce, J. A.: Some of the More Unusual Forms of Epithelial Growths of the Skin, THE JOURNAL A. M. A., Oct. 24, 1908, li, 1398.

ABSTRACT OF DISCUSSION

DR. JOHN A. FORDYCE, New York: I have seen one case which was identical with the type described by Dr. Hartzell. There was a depressed, whitish, morphea-like lesion involving the skin of the chin, covered by dilated blood vessels. The lesion gave no suggestion of epithelioma until a biopsy was made. It was of the tricho-epithelioma type. This case was reported in THE JOURNAL, Oct. 24, 1908, p. 1398, among some of the unusual forms of epithelioma of the skin.

DR. LOUIS A. DUHRING, Philadelphia: The question might arise whether such epitheliomatous degenerations should be regarded as carcinoma of the skin simulating morphea in form and general appearance or whether they may begin in some other way—as morphea, and then undergo degeneration. As has already been remarked, there is no doubt that morphea lesions may at times undergo ulceration. I have seen several cases of the kind. There seems on the other hand, however, to be no doubt that occasionally carcinoma of the skin manifests itself in the form of a lesion, especially on the face, simulating the morphea patch rather closely, though perhaps generally the lesion is raised and not flat or sunken.

DR. HENRY H. HAZEN, Washington, D. C.: About two years ago I saw a woman with a morphea-like patch on the right cheek which she stated had been there for nine years. The spot was slightly depressed, with a hardened edge. Epithelioma was suspected, and on biopsy and examination the lesion proved to be a typical basal-celled epithelioma. There was no recurrence two years after excision, and no similar lesions have developed elsewhere.

DR. WILLIAM A. PUSEY, Chicago: I wish to express to Dr. Hartzell a feeling of personal gratification for the title that he has given his paper. It describes with great accuracy a type of epithelioma of which I have seen a few examples. I imagine that Dr. Hartzell's conception of these lesions is that they are not morphea and have nothing whatever to do with morphea except in the resemblance they bear to it. It is a superficial epithelioma of the skin that looks like morphea. When I first saw this title on the program I was struck by it because at the time I had such a case under observation. In this case the lesion was ivory-like, yellowish-white in color,

infiltrated, without elevation or depression. The infiltration was dense and there was no violaceous border, but a marked deposit of black pigment. There was no ulceration, and there had been none. Histologically, it was a basal-celled carcinoma, and the diagnosis was made by the surgeon who sent the patient to me. I have seen several similar cases in the past. Dr. Schamberg brought up the question of the possible development of the epithelioma in a morphea lesion from the use of the *x*-ray. In my case the patient had never been exposed to the *x*-rays before I saw him. Under the use of the rays the lesion disappeared with the exception of this black pigmented spot which I destroyed by cauterization.

DR. M. B. HARTZELL, Philadelphia: Notwithstanding the scant mention of this disease in dermatologic literature, I do not think that it is really rare. As ulceration had already taken place before the *x*-ray was used the latter could by no possibility be held responsible for the epithelioma. As is well-known, ulceration takes place in some cases of morphea owing to the tense condition of the skin; but I believe that the cases here reported were epithelioma from the beginning. This is simply another example of the mimicry so often seen in diseases of the skin. The case referred to by Dr. Pernet, in Crocker's book, had escaped me, but that was not one to which I referred. It is difficult to explain the peculiar clinical features of these lesions. So far as my rather hasty study of the sections goes, there is nothing in the histology to account for the clinical appearances.

THE TEACHING OF DERMATOLOGY—DERMATOLOGY AND THE PHARMACOPEIA *

[EDITOR'S NOTE: The Chairman's address with the above title, by Dr. William Allen Pusey, Chicago, appeared in THE JOURNAL, June 19, before the discussion thereon had been submitted to the speakers for correction. The discussion was therefore omitted at that time and is now presented below.]

ABSTRACT OF DISCUSSION

DR. LOUIS A. DUHRING, Philadelphia: All teachers of dermatology doubtless have their own methods of bringing the subject before the classes. Of course, it is well understood that they are usually limited in the amount of time allotted to the subject in the college curriculum. Dr. Pusey intimated that the dermatologic material at the command of the teacher in most universities was usually sufficient. That, in my opinion, depends to some extent on the city where the school is located, but even in some large cities in this country it is not so abundant at the college clinics as in most of the cities of the old world. There are certain cities where difficulty exists in getting enough material of the right kind, especially where large classes are to be provided for. Coming to the matter of didactic instruction, I have always regarded it as distinctly valuable to the student. I base this view largely on conversations with former students with whom I have come in contact in after years, and their statements on the question have impressed me much. In the institutions with which I am connected as a teacher, our examinations for a number of years have been oral, and I have, therefore, from remarks made, been convinced that students have acquired a good deal of knowledge from didactic lectures. I do not think that the importance and value of properly illustrated didactic lectures should be ignored. Compel the students to read and to become familiar with terms and nomenclature, and this, in my opinion, in itself is distinctly valuable. In connection with didactic instruction arises the question of illustrations. Should we illustrate our lectures very fully or only partially? Should we throw on the screen a large number of pictures with each disease or only a few selected typical cases? Some err, I believe, in illustrating lectures too freely. Students, I think, learn more from a small number of typical illustrations, either large, colored portraits, well-illuminated or photographs thrown on the screen, or through wax models, while too many illustrations in succession only confuse and embarrass. Wax models of skin lesions in particular are of much value. I do not think they are sufficiently appreciated.

Briefly summing up my views on the subject, I regard clinical instruction as, of course, of paramount importance, but, as already remarked at times, it is difficult in some cities to get sufficient material for lecture purposes for a class of, say, 125 students, several times weekly. Secondly, I view didactic instruction as of much value, especially when combined with a moderate number of typical, colored illustrations. I am aware that some teachers may take exception to these views, but we should each express our own based on experience with classes and that is what I have tried to do.

DR. M. B. HARTZELL, Philadelphia: I think I have already expressed my views on this subject in answer to the questions that were sent to me by the chairman of the committee, but there are one or two points about which there may be some debate. One relates to the amount of time that should be devoted to the clinical teaching of dermatology as compared with that given to didactic instruction. Some regard the didactic lecture as out of date; and I agree that it would be out of date if each one of us had a clinical service sufficiently large to illustrate all classes of diseases of the skin. I am acquainted with some of the larger skin clinics of the world, and with perhaps a single exception, I do not know of anywhere it would be possible to give a systematic course in dermatology by illustrative cases alone; therefore, we are compelled to give a certain place to didactic lectures. Of course, there are didactic lectures and didactic lectures. If given in a perfunctory way they do not amount to very much, but if the teacher is honest and earnest, they furnish an important foundation for other kinds of instruction.

There is only one way in which the student can actually learn dermatology, and that is, by seeing the cases. One might as well attempt to describe a sunset to a man who had never seen one as to describe some cases of disease of the skin. It is absolutely impossible to have a real, practical knowledge of diseases of the skin without considerable acquaintance with their appearance as they occur in the living subject. Illustrations, wax models and photographs are very well in their way, but nothing can take the place of the living subject. I believe that no actual teaching of dermatology can be done which neglects to give this a large place in the course of instruction.

* Read in the Section on Dermatology of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

THE CHRONIC SCALY ERYTHRODERMIAS *

WILLIAM B. TRIMBLE, M.D.
Lecturer on Diseases of the Skin, New York University (University and Bellevue); Chief of the College Clinic, Assistant at the New York Skin and Cancer Hospital
NEW YORK

The literature on this subject is comparatively meager, especially in this country. This fact alone would seem to be sufficient warrant for further comment, even if the malady were not classed among those which are strangest and most interesting. The rarity of the disease also leads me to report three cases, which have come under my care within the past year; a goodly number, it appears, to fall to the lot of one observer in so short a period. Two of them are clinic patients, the observations being made in the service of Professor Fordyce, at the University and Bellevue Hospital Medical College; the third is a private case.

Sporadic cases have been recorded by Unna, Juliusburg, Jadassohn,[1] Méneau,[2] Brocq and others on the Continent; by Crocker,[3] Little, Galloway, Fox, and Macleod, in England, and by White, Anthony[4] and

* Read in the Section on Cutaneous Medicine and Surgery of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

1. Jadassohn: Festschr. zu Ehren von Moritz Kaposi, 1900; Verhandl. d. IV Deutsch. dermat. Kong., 1894.
2. Méneau: Jour. d. mal. cutan., 1902.
3. Crocker: Brit. Jour. Dermat., 1905.
4. Anthony, H. G.: Report of a Case of Parakeratosis Variegata, Jour. Cutan. Dis., 1906, xxiv, 455.

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Fordyce in our own country. Several of these observers have expressed their views in excellent articles on the subject, to whom reference will be made later.

The ground has been fairly well covered by previous observers, but the subject has been by no means exhausted, so, while not hoping to disclose any unique or surprising facts, I shall be glad if any of my observations are new and helpful to others.

The diagnosis was reached after careful study, both pathologically and clinically, the patients being examined many times, and shown to my confrères on numerous occasions. Experience has long since taught me that it is extremely difficult to fix in the mind's eye the aspect of a rare skin disease from a written description, without having under observation a similar case. For that reason illustrations are shown so as to throw as much light as possible on the description.

REPORT OF CASES

CASE 1.—*Patient.*—A woman, aged 26, single, born in Poland, weight about 120 pounds, seamstress by occupation. She was a well-developed young woman, slightly below the medium height and, except for her skin affection, enjoyed good health. (Fig. 1.)

Family History.—The patient's father died at 58, having suffered from paralysis for some months previous to his death; the mother is still living but not strong. She had three sisters and four brothers, all living and healthy. There was no history of tuberculosis in the family, and, as far as she knew, no other member had had a dermatologic complaint.

Personal History.—The patient said that she was a sickly child, having had practically all the diseases of childhood, the most noteworthy being measles and scarlet fever. Her hearing was slightly impaired on the left side as the result of the fever, and a scar existed on the cornea of the left eye, the aftermath of an ulcer, which was the sequel of the measles. She came to this country when 19, and soon after that time suffered from suppression of the menses; this lasted about six months, during which period the disease first made its appearance, making its duration six years.

Present State.—The eruption was almost universal, the exceptions being the face and upper part of the back, viz., above the superior borders of the scapulæ. On the chest, back, arms and forearms, it occurred in ill-defined, noninfiltrated patches, varying from the size of a pea to that of a silver quarter. They were dull pink at the periphery, with a brownish tendency toward the center; the patches were apparently broken up and coalescing in places; these, mingled with areas of healthy skin, gave it a mottled appearance. The ensemble was pinkish yellow to purple in some places. This purplish hue was marked on the lower extremities, where practically no healthy skin existed; the condition here resembled ichthyosis greatly, with the exception of the color. The chest plaques were somewhat like those of pityriasis rosea. The lesions were covered with fine scales which left no bleeding points on removal; this scaling was more marked on the lower extremities, the disease being much older in these regions. There was a small patch on the palm of the left hand, but the right palm was free. The soles exhibited a tendency to scale slightly, but no definite lesions were visible. The nails were unaffected. The patient perspired very little on the body, but freely and constantly on the face, even in winter; the disease was attended with practically no itching, perhaps a very little in the summer. When the case was first seen, and for some time afterward, the lesions were all macular; the patient was subjected to strong and vigorous treatment, and at the time of last report a few of the small lesions on the forearms were slightly elevated and might be called papular. Abortive exacerbations and remission took place but the evolution of the patches was extremely slow. The urine showed no abnormal constituents.

Histopathology.—The whole epidermis was very much thinned, especialy in the middle of the specimen; the horny layer was slightly increased in thickness. It was completely cornified in most of its extent, but in one or two places a parakeratosis existed, though the retained nuclei were quite pale. The stratum lucidum could be seen in a portion of the specimen. The granular layer also varied; it was entirely wanting or very much diminished where the parakeratosis existed; in other areas where the stratus corneum was thin it was quite distinct, though consisting of only one layer of cells. In one rather large area in the center the rete pegs were obliterated, the prickle layer at this point being flat and consisting of two or three layers of cells. This change occurred immediately over that portion of the corium where the cellular exudate was most marked. Only a slight degree of intercellular and intracellular edema was discernible. The palisade layer in places was very indistinct, the cells being arranged transversely instead of longitudinally. The corium showed dilated vessels filled with blood, and a moderate amount of perivascular infiltration, lymphocytic in character, with an occasional plasma cell. Some of the sweat coils were dilated, and

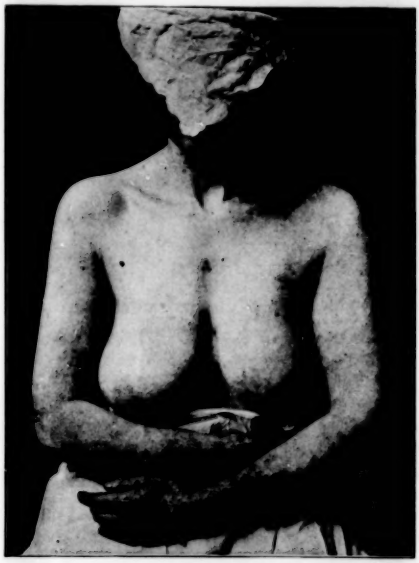

Fig. 1.—Chronic scaly erythrodermia, Case 1.

on the surface the mouths of the follicles were somewhat widened and filled with horny material.

CASE 2.—*Patient.*—A man, aged 40, married, nativity, England; occupation, butler; strong, healthy, medium height, weight 160 pounds. This case differed from the preceding one as to duration and location (Fig. 2).

Family History.—The patient's father's death was caused by an attack of pneumonia at 55. Tuberculosis was the cause of the mother's death at 37. The patient was the only living child; his mother had four other children, all of whom died at birth. Collateral branches of the family were strong and healthy, for far as he remembered; no other member of the family had a cutaneous malady. His wife and child were in good physical condition and had never had a skin disease.

Personal History.—About twenty-two years ago the man had a sore on his penis; he was told at that time by a first-class physician that it was entirely local; no secondaries followed. He gave a rather obscure history of having worn "braces" and having been treated by an orthopedic surgeon for some spinal trouble, caused, as he says, by a fall. It seemed probable that

he had had some slight anterior curvature, as when he stood in the military posture he was noticeably "sway-backed." There was no apparent lateral curvature of the spine. He did not remember having any of the diseases of childhood, but had had two severe illnesses since adolescence. The first was an attack of cerebrospinal meningitis about eighteen years ago, and the second rheumatism of shoulder, which persisted for weeks.

Present State.—The arms and lower extremities, especially the thighs, were thickly covered with pinkish-brown patches, most of which were about three-quarters to one inch in diameter; they were superficial, free from infiltration and had a tendency, in this case, to be rather sharply circumscribed. Those on the thighs were almost a perfect picture of the lesions of pityriasis rosea. The desquamation is marked and they coalesced in places, giving a somewhat marbled appearance. The patches on the legs, as well as those on the arms, were

Fig. 2.—Chronic scaly erythrodermia. Case 2.

very slightly infiltrated and more scaly than the rest. The duration of the disease had been twenty years, and, as a rule, it remained stationary; it exacerbated and remitted, however, but only at long intervals, the old lesions never disappearing entirely. The patient stated that the eruption had disappeared completely on two occasions; the first time, during the attack of cerebrospinal meningitis, and the second time, when he was under treatment for the rheumatic shoulder; the latter disappearance came about after he was put upon a diet of bread and milk; it reappeared very quickly when his regular diet was resumed. There was practically no itching, possibly a little at night, but never enough to cause sleeplessness or annoyance. The extremities were the main locations, but there were a few lesions on the trunk. The palms and soles were free and so was the face. There was an occasional papule, but the disease was, in the main, macular; the piling up of the scales in some of the small lesions gave it a papular feel, but when these were removed by the fingernail the lesion seemed to be flush with the normal skin. There were no hemorrhagic points on removal of the scales. The nails were in good condition. There was no glandular enlargement, and no dandruff of consequence. The urine had a specific gravity of 1037 but the examination was negative in other respects. The evolution of the lesions was very slow. The patient perspired excessively on the face but normally on the body.

Histopathology.—The horny layer was irregularly increased in width, and where it was augmented in thickness parakeratosis existed. One portion was firmly adherent, and contained well-stained but flattened nuclei. The stratum lucidum was not constant. The granular layer was not uniform either as to depth or density of granules; it was much diminished or lacking in some places, while it was thickened in others. The parakeratosis was more marked over the places where the granular layer was thinned or absent, although it existed in other parts of the section. An overgrowth of the rete was present; in one area the pegs had anastomosed, forming a network. The palisade layer was intact and about normal. There were a few emigrated leucocytes present both in the rete and in the scale. In the upper corium a mild lymphocytic exudation was observed; the vessels were dilated and sheathed by lymphocytes. There was some proliferation of the fibroblasts. The appendages presented nothing beyond a dilatation of some of the coil glands.

For the sake of brevity, the history of the third case will be shortened, eliminating the parts that seem to have no special bearing.

CASE 3.—*Patient.*—A woman, aged 27, married, born in United States; housewife. She was somewhat above medium height, very thin and anemic; weight 115 pounds (Fig. 3). Although her appearance indicated the contrary, she insisted that she was perfectly well. The family history was of negative character and did not seem to bear any weight.

Personal History.—The duration of the disease was one year. The patient had never before been afflicted with a skin disease. She had no children, having had, some years ago, a double ovariotomy performed. The reasons for this were obscure. She had never had a serious illness.

Present State.—When the patient first presented herself for treatment the left side of the face was much swollen, almost to the point of closing the left eye. This was diagnosed as neurotic edema. Her recovery from this was rapid. She then called attention to the disease in question, which had been present several months. The eruption was, in the main, confined to the trunk; there were some few scattered lesions on the arms, but the chest, back and abdomen were the main locations. The palms, soles and face were free. The lesions in this case were much smaller than in the two preceding; the majority were about the size of a match-head, a few reaching the dimension of a half dime. The eruption was maculopapular, the papular element being in the great minority. The color of the lesions was dull pink with a brownish tinge, and they were scaly and discrete. The scales could be removed without bleeding. The case was under observation one year, and during that time had three so-called exacerbations; the evolution of the new lesions was slow, and the old ones never entirely disappeared; in fact, the history was the same as in the other cases, except that the lesions were much smaller, and discrete. The urine examination was negative. The patient perspired very freely on the face, but normally on the body.

Histopathology.—The changes in this specimen were so slight that a very few words will suffice for its pathology. The epidermis was thin in all its layers, but presented no other abnormality. Only an occasional nucleus could be found in the horny layer, which was almost completely cornified. In the upper cutis a very mild perivascular infiltration of lymphocytes was seen.

CLINICAL ARGUMENT

It has been the tendency of the dermatologic profession of late years to designate as identical all the diseases with the following titles: Dermatitis psoriasformis nodularis, parakeratosis variegata, *érythrodermie pityriasique en plaques disséminées,* pityriasis lichen-

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oides chronica, dermatitis variegata, lichen variegatus, etc., etc. This is not concurred in by some observers, especially by those who have reported sporadic cases. The divergence of opinion is, in all likelihood, due to the fact that the disease is very rare, and few cases fall to the lot of one observer. Some manifestations predominating over others, in widely separated cases, may also account for the various names it has acquired.

Ever since the original description of parakeratosis variegata in 1890 by Unna, Santi and Pollitzer[5] the chief point of contention has been whether the primary lesion of the malady is a macule or a papule. This is still an unsettled question. In the article just mentioned many of the lesions were described as papular.

Brocq,[6] in 1897, in a report of cases observed at the Hôpital Broca-Pascal and described under the head of *érythrodermie pityriasique en plaques disséminées*, did not mention any papular element, but spoke of the disease as a pityriasis in circumscribed patches.

J. C. and C. J. White[7] in 1900 reported cases of Brocq's pityriasis in patches, seen at the Massachusetts General Hospital; they lay great stress on the fact that the lesions are macular and not papular.

Fox and Macleod[8] in 1901, in reporting a case of parakeratosis variegata, speak of the lesions as maculopapular, the macular element predominating. Brocq[9] in a later admirable communication inclines to the opinion that all the diseases, the numerous titles of which have been given above, are related. He has grouped them all under the head of parapsoriasis, which he divides into three classes: (1) parapsoriasis guttata; (2) parapsoriasis lichenoides; (3) parapsoriasis in patches. He compares the cases described by Jadassohn to the first variety; those of parakeratosis variegata and lichen variegatus to the second, and his own pityriasis in patches to the third. He also speaks, in this last article, of having observed occasionally a few papules in some of the cases of pityriasis in patches.

Should it be desired to assign the cases I have here reported under the title of parapsoriasis, then Cases 1 and 2 would come in the third class (parapsoriasis in patches) and Case 3 would be assigned to the second division (parapsoriasis lichenoides).

As far as I can judge from the description of the German cases,—viz: those of Neisser,[10] Juliusberg[11] and others—it seems that the papular feature is distinct; therefore they would be classed as parapsoriasis lichenoides according to Brocq's classification. Keeping my own cases in mind to the exclusion of others, I would enumerate the main features as follows: The distribution on the trunk, and sometimes on the extremities, of variously sized, ill-defined patches varying in color from a dull pink to a light brown, the almost total absence of itching and also of all other subjective symptoms; the persistent fine scaling and the slight, if any, infiltration of the patches.

The development of the eruption is extremely slow; the integument very dry; the great majority of the lesions are macular, and the disease is very rebellious to treatment.

It is difficult to grasp the reason why so much time has been spent in theorizing as to the primary lesion, whether a macule or a papule; it does not make much material difference; the lesion could be macular at first and later become papular as the process advanced.

From the studies of these three cases I am constrained to believe that the disease is primarily macular, and not in the true sense a lichen. This opinion is sustained by the fact that, with the exception of Case 3, practically all the lesions were macular when the patients were first seen; afterward a few so-called papules were noticed, which were due partly, perhaps, to the continuous stimulating applications. This treatment irritation probably produces some slight proliferation of the horny layer in places, and also a certain degree of lichenification, which causes some of the lesions to appear slightly raised. In Case 3 the lesions are better described as maculopapular; even in this case they were very flat and the majority displayed very little infiltration when picked up between the thumb and forefinger, and inspection from an angle showed them in most instances to be flush with the normal skin.

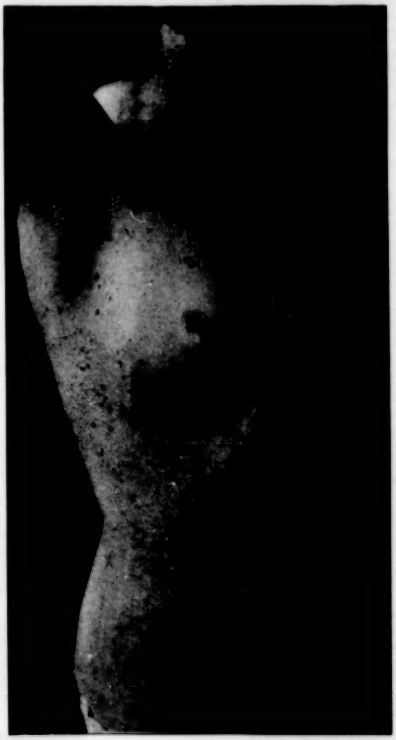

Fig. 3.—Chronic scaly erythrodermia. Case 3.

The diseases mentioned by other writers as akin to or having resemblances to this malady are psoriasis, se-

5. Unna, Santi and Pollitzer: Monatsh. f. prakt. Dermat. x, 1890; (abstr.) Brit. Jour. Dermat., 1890.
6. Brocq: Jour. d. pract., September, 1897.
7. White, J. C.: Jour. Cutan. and Genitourin. Dis., 1900.
8. Fox, T. C., and Macleod, J. M. H.: Case of Parakeratosis Variegata, Jour. Cutan. and Genito-Urin. Dis., 1901, xiii, 319.
9. Brocq, L.: Parapsoriasis (including the érythrodermies pityriasiques en plaques disséminées), Jour. Cutan. Dis., 1903, xxi, 315.
10. Nelsser, A.: Zur Frage der lichenoiden Eruptionen, Verhandl. d. iv deutsch. dermat. Kong., 1894, iv, 495.
11. Juliusberg, F.: Arch. f. Dermat. u. Syph., 1897; Ueber die Pityriasis lichenoides chronica (psoriasiform lichenoides Exanthem), 1899, l, 359.

borrheic eczema, lichen planus, premycosis and pityriasis rubra.

At first glance it seems almost absurd that the lesion in question could have points of resemblance to all the above, as an eruption that is similar to lichen planus could hardly resemble pityriasis rubra; still the disease has different phases and it is natural to compare it. It is similar to a vanishing psoriasis, and this was attentively considered when Cases 1 and 2 first presented themselves, especially in the second. It has, however, many differential features from an ordinary case of psoriasis. The lesions in these cases show no particular predilection for the knees and elbows; the scales are different in character, being finer and not lamellated; they show no bleeding points on removal; the patches are only slightly infiltrated and the scalp is not affected.

There was no resemblance to lichen planus in the first two cases, but Case 3 had some features in common—namely, the lesions were small; they were maculopapular and flat, and were surmounted by a scale. The points of difference are: the lesions do not glisten as do those of lichen planus; there is no tendency to umbilication; the color is not the same, and nowhere does any tendency to hypertrophy exist; lastly, they do not yield to the most persistent lichen treatment and there is no itching. These cases differ from seborrheic eczema in that the scales are not greasy, the distribution is very general and the scalp is not affected. According to my own experience, the patches did not in any way resemble those of premycosis; they were not so large, did not show the infiltration; and the intense itching that nearly always accompanies premycosis was absent. The long duration, in one case seven years and in another twenty, would not preclude mycosis, but would weigh a little against it, although I realize fully that this early stage of premycosis can last a very long time; having had a patient under my care in whom it existed for twenty-five years. There is also on record a case shown by Dr. Allan Jameson at the British Medical Association in 1898, which some of the members diagnosed positively as parakeratosis variegata, and which later revealed itself as mycosis fungoides.

The diagnosis from pityriasis rubra is obvious and needs no further comment.

One of the striking features, which is not mentioned by some writers and only casually by others, is the similarity to pityriasis rosea. This was more noticeable in Cases 1 and 2, but it existed in a slight degree in Case 3 in one or two of the macular lesions.

This likeness was so marked in one of the patients that the assistant clinicians were unanimous in their opinion that the case was one of pityriasis rosea. This conjectural diagnosis was made before the patient was questioned; this is our custom in the clinic, and might be termed dermatological sight-reading.

The eruption in pityriasis rosea is probably more erythematous and the patches more uniform in size and regularity, but the likeness was great enough for us, sometimes, carelessly perhaps, to speak of it as chronic pityriasis rosea.

REMARKS ON THE PATHOLOGY

The morbid changes seem, in the main, to be much like those already reported, but there are some minor differences. The mild perivascular infiltration of cells in the uppermost layer of the corium seems to be common to all; in most instances the predominating variety were lymphocytes; this is true of the cases referred to in this paper, though there was an occasional plasma cell. Other writers, however, have described both mononuclears and polynuclears, and Anthony,[4] reporting a case of parakeratosis variegata, states that the cells were mostly of the latter variety.

The basal layer in one of the sections was indistinct and blurred, being somewhat like one of White's cases. Parakeratosis existed in all the sections, but very little in Case 3, as only an occasional nucleus could be discovered; slightly more pronounced in Case 1 and quite well marked in Case 2. Wherever the parakeratosis existed the granular layer was either absent or very much diminished, as has been frequently noticed before by others.

The stratum lucidum is not constantly present; it has been reported absent in most other cases, but was distinct in Anthony's.

The histologic changes in Case 2 are comparable to one reported by Jadassohn—viz., parakeratosis, some acanthosis and emigrated leucocytes were present in both cases. These always point strongly to psoriasis, and the specimen in a few places had features which were not unlike those seen in sections of that disease. The duration of this case was twenty years, and if it were ordinary psoriasis the infiltration of the skin would be greater and the pathologic changes much more marked.

The generic titles suggested for these dermatoses are parapsoriasis (Brocq) and resistant maculopapular scaly erythrodermias (Fox and Macleod). Of the two the latter term seems to me preferable. If it is necessary to group the affections, the title at the beginning of this article might answer the purpose as well as any. Clinically there seems to be almost enough difference between parakeratosis variegata and parapsoriasis in patches to warrant classing them separately. The names for the individual cases are not particularly apt, and numerous objections can be raised. For instance: It would seem best to relegate the word parakeratosis to the laboratory and not use it as a clinical term. The word "lichen" is also rather inappropriate for an efflorescence in which the majority of the lesions are macular.

From a descriptive standpoint Brocq's title of *érythrodermie pityriasique en plaques disséminées* can not be improved on, except that it does not fit very well in American dermatology. The nomenclature is already so confusing that one hesitates to further complicate it; consequently it will be allowed to remain *in statu quo*.

One curious symptom observed in all three cases was the very noticeable and rather excessive sweating on the face, which persisted to a degree even in the cold weather. The face was never the seat of any of the patches and where the disease was present on the trunk and extremities the perspiration was either normal or diminished. This feature is unexplainable.

My thanks are due to Dr. E. C. Jagle for the work of preparing the specimens and valuable suggestions during the examination of the same; and also to Professor Fordyce, who has so kindly allowed me the privilege of the laboratory and the use of some of his material.

NOTE.—In addition to the references previously cited, the following may be found of interest:

Corlett and Schultz: Jour. Cutan. Dis., 1909.
Ravogli, A.: A Case of Erythema Squamosum, THE JOURNAL A. M. A., July 13, 1901, xxxvii, 109.
White, C. J.: Jour. Cutan. Dis., 1903.

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ABSTRACT OF DISCUSSION

DR. WILLIAM S. GOTTHEIL, New York City: I think we must all admit that a new name is required for this class of eruptions, and the name is of little consequence so long as it is simple and easy to remember. I believe that para-psoriasis is a better name than chronic scaly erythrodermia. These cases are commoner, I think, than we suppose, and that would explain some of the differences of opinion that they have given rise to. One man calls his case a seborrheal eczema, another a psoriasis, and still another a pityriasis rosea. I think that para-psoriasis is perhaps the most appropriate name for this particular class of cases.

RODENT ULCER OF THE CORNEA (MOOREN'S ULCER) *

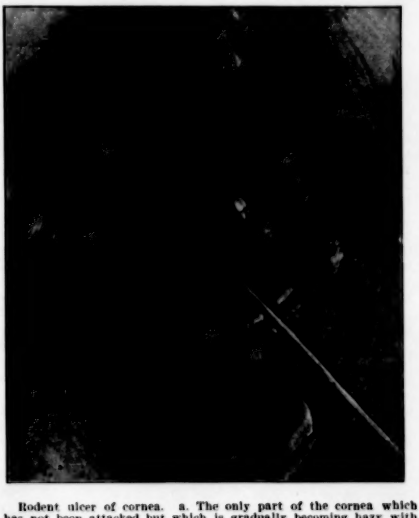
ROBERT L. RANDOLPH, M.D.
BALTIMORE

It is a matter of some surprise to me to find how few reports of cases of so-called rodent ulcer of the cornea have found their way into literature; according to Hayashi not more than thirty-five. I can not but think that this is due in many instances to the fact that the condition has not been recognized as rodent ulcer but was regarded perhaps as a marginal ulcer of the serpiginous variety and treated accordingly. That most ophthalmologists whose experience extends over a number of years have met this variety of corneal ulcer once at least is very likely and that it has not been identified as the rodent ulcer first described by Mooren is equally probable. I say first described, for it was really Mooren whose name is most closely associated with the condition, though reference to the same condition will be found in the writings of Bowman many years previously.

At first sight this form of corneal ulcer does not differ from that form which every ophthalmologist sees now and again, and which he recognizes as a marginal ulcer. Indeed I doubt whether it is possible to identify clinically a rodent ulcer in its early stages, and this uncertainty will prevail until we learn more of its etiology. If it be due to a specific bacterium (and I think it is) it would be possible to identify it at once, but from a bacteriologic point of view no conclusive light has been thrown on this variety of corneal inflammation, and we are confronted with a disease which in many respects is similar to what we now and again see in hospital practice. Even after the disease has been present for many weeks, it is more than probable that most of us would fail to realize that we were dealing with anything more than a very obstinate corneal ulcer. And yet there was in the only case which I have seen one feature at least which distinguished it from any other ulcer of the cornea which I had ever seen, and that was the deeply undermined conjunctival edge of the ulcer. The edges of marginal ulcers are always more or less undermined, but owing to the better blood supply at the conjunctival edge this edge of the ulcer is not conspicuously undermined, except probably in the case of rodent ulcer.

In the case reported here the conjunctival edge of the ulcer could be lifted up and was undermined to the extent of at least four or five millimeters from the border of the cornea. This, I believe, is peculiarly true of the rodent ulcer and it will be found in the early stages of the affection. It is well known that the corneal or progressive edge of the ulcer is always undermined to the extent of two or three millimeters, but I do not think that attention has been sufficiently called to the extensive invasion which goes on beneath the limbus, and which is often lost sight of. My attention was called to this feature in about three weeks after the patient came under my care. McNabb and others mention the possibility of the process extending under the limbus, but it seems to me that careful examinations of the conjunctival border of the ulcer should be repeatedly made, for we can hope to mitigate this condition only by addressing our remedies to those parts of the ulcer where undermining is in active progress. In my case the corneal edge was distinctly undermined and could readily be elevated and a probe passed into a cleft two millimeters in extent, while, as I have said, the conjunctival edge was undermined to twice the extent of the corneal edge.

Chronicity is an important point in the history of rodent ulcer. The average length of time is from two to ten months and occasionally the condition lasts for more than a year.



Rodent ulcer of cornea. a. The only part of the cornea which has not been attacked but which is gradually becoming hazy with approach of the ulcer. b. Area of cicatrization after ulcer has run its course. c. Ulcerative process is especially marked in this area (note undermined limbus). d. Corneal or progressive edge of ulcer, showing crescentic shape which was more marked in early history of case. This edge is also undermined.

History.—The patient (E. T. L.) whose case I report was under treatment since early in July, 1908, two months before he came to me. He was and still is a healthy looking man of 52 and has a well-marked arcus senilis on his right eye. The ulcer of his left cornea obliterated the arcus on that eye. He had never had any serious sickness. He gave a rather vague history of an injury to his left eye early in June. About this time he had a foreign body removed from his left eye by an optician and from that time his troubles with the eye commenced. He first consulted an ophthalmologist in July. All this time, however, he continued his occupation, which was that of a traveling salesman in connection with a big business concern in Baltimore. In July he returned from a trip south and, according to the oculist who then saw him, he had a mar-

* Read in the Section on Ophthalmology of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

ginal ulcer which occupied the outer and lower fourth of the left cornea. When I saw him in September this was still his condition, though his attending physician said that the ulcer had spread considerably since he first saw him.

Treatment and Course of Disease.—I found that the patient had been using massage with yellow ointment and irrigations of weak sublimate solution. I advised the application of pure carbolic acid, the instillation of atropin preceded by an irrigation with normal salt solution and also that he be put on tonic treatment, quinin and strychnin. This was done and with apparently no benefit, for he returned in ten days with a request from his oculist that I take charge of the case. There was then the remarkable undermining of the limbus which had escaped me at the patient's first visit ten days previously and which no doubt had been there all the time. This undermining is well shown in the accompanying drawing. I felt sure now from the superficial character of the involvement, the undermined edges, and the fact of its having been present for over three months that I was dealing with a rodent ulcer. The galvanocautery was applied and particular care was taken to pass the loop well up under the limbus and under the progressive edge of the ulcer as well. Fluorescin proved a help in bringing out the areas which were affected. There was marked improvement right away, and in three or four days new blood vessels were seen making their way over the affected part from the conjunctiva. The atropin and internal medication were of course kept up. Ten days later the eye became intensely red, the irritative symptoms broke out afresh, and several new spots appeared at the upper end of the ulcer. These spots in a few days coalesced and fused into the main ulcer. Again the cautery was applied as before and again a few days later to another point which I thought I had overlooked. Apparently this last application was of distinct benefit, for improvement continued up to the middle of October, when he had another outbreak, and I determined to try tincture of iodin. Three applications were made in one week, but there was not the slightest benefit obtained, contrary to what is usually obtained when we use iodin in the ordinary forms of marginal ulcers of the cornea. Iodin is my main reliance in corneal ulcers in this situation. Between November 1 and Christmas two more applications of the galvanocautery were made and always with improvement, but this lasted for only a few days. At the last application improvement was so pronounced that I promised the patient his Christmas dinner at home. Much of the redness of the eyeball had disappeared and much of the cornea was clear. The patient left the hospital to return home, where he spent his Christmas with a black patch over the eye. The next day the process started up with unusual vigor and I concluded that the galvanocautery had been given a fair trial. About this time I picked up a communication by Risley, who had seen benefit follow the administration of thyroid extract in obscure cases of keratitis. The patient took three grains of this three times daily, but in a week had to leave it off, as it produced diarrhea even when smaller doses were given. This is a not infrequent occurrence during the administration of the so-called thyroid treatment. I then tried the application of trichloracetic acid, and this, I am sure, made the condition worse. Only one application of this was made. It was then suggested that I try a light compress bandage and a boric acid ointment between the lids. This was faithfully tested for ten days but without any benefit. A great deal of the time in the early history of the case I had tried the instillation of chlorin water several times daily, but I could never see that it did the slightest good. The last measure tried was recourse to tincture of iodin and a light immobilizing bandage, but the result of all this was the infliction of a great deal of suffering without the slightest improvement. The iodin was applied six times over a period of two weeks. What seemed peculiar was the fact that none of the many remedies employed seemed either to accelerate or to retard the process, which went on slowly and surely to take in the greater part of the cornea. I might except trichloracetic acid, which probably did harm. Soon after Christmas a very light grade of plastic iritis developed, which was easily controlled. There have been times when the ciliary neuralgia has been intense, but the patient has slept and eaten well and, generally speaking, has been comfortable. The only measure which seemed to promise recovery was the galvanocautery, and more than once I thought the chances fair, but no substantial, certainly no permanent advantage over the process was gained, and I would return to the patient's room the next day to find his eye in a blooming state of inflammation. It seems strange that Fuchs should give such a favorable prognosis in this class of cases if the galvanocautery is used, when in by far the majority of cases reported the cornea was ultimately covered by a leucoma in spite of this treatment in the hands of skilful observers. At the present writing the patient's cornea is gray all over, with the characteristic anesthesia of most of the surface and he counts fingers at one foot.

It may be interesting to note the following data in reference to the frequency of rodent ulcer. Hayashi saw rodent ulcer 4 times in 11,400 eye cases. Mooren in twenty-five years saw the affection 20 times in 108,417 cases; Jany once in 66,000 cases; Vossius 3 times in 25,000 cases; Uhthoff 3 times in 10,000 cases; Hillemann failed to see the disease in 11,000 cases in the eye clinic in Bonn, but observed it 3 times in 7,000 cases in Utrecht. Asayama met with rodent ulcer 4 times among 6,780 eye cases; Kiribuchi saw it 6 times in 11,000 cases and Ogiu saw it 6 times in 8,900 cases. The disease would seem to be somewhat more frequent in Japan.

It is a mistake to think that the affection is a painless one, for it is characterized by frequent attacks of suffering and irritative symptoms generally. The ulcer shows a decided tendency to keep close to and run parallel to the limbus of the cornea and one of its peculiarities is its tendency to clear up and look as though it would be completely well in a few days, when a fresh outbreak would land the patient back at a point which was thought to have been left far behind days ago. The progressive edge of the ulcer at this time as Nettleship describes it, "forms a narrow sinuous whitish band level with the cornea of which the two ends are in advance of the centre, so that the diseased surface at this stage is roughly crescentic and sometimes semilunar." Behind this edge of course there is no epithelial covering and here the fluorescin stain takes well, and further back comes that part where the process has spent itself and the cornea has been left scarred, and it takes poorly the fluorescin stain. In most cases the disease dies out after the entire cornea has been involved, but according to McNabb recurrences take place in exceptional instances and the ulceration reappears to penetrate deeply into the cornea and expose Descemet's, membrane, or even to penetrate through it.

Rodent ulcer as a rule is seen in individuals over forty, though Pflüger, Handmann and Grossmann report cases in younger patients. It has probably never been seen in children. Men are more prone to it than women. Of the 36 cases, reports of which are found in literature, 25 were in men and 11 were in women. It is not infrequently found in both eyes. Hillemann, who has made an analysis of the subject, found that it occurred eleven times in both eyes, though I do not believe it has ever been observed in both eyes at the same time.

We are completely in the dark as to its etiology. There are those who maintain that disturbances in the sensitive nerve endings are largely responsible. Among these are Ahlström, who noticed anesthesia of the cornea in its entire extent, and Vossius, who in three of his cases observed somewhat similar phenomena. On the other hand there are others who have failed to observe

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this condition. I have thought at times that there was some anesthesia, but I could never get any convincing evidence of this condition except in those parts in which the nerve endings had probably been destroyed. Ahlström holds that it is a kind of progressive necrosis of the superficial subepithelial corneal layers and of nerve origin. Kiribuchi touches on its probable systemic origin as evidenced by its appearance not infrequently in both eyes. Asayama found in four cases evidences in the stools of intestinal parasites, and thinks that there may be some causal connection. This possibility was excluded in my case. A study of the published cases throws no satisfactory light on the etiology of this rare and intractable disease, neither does it offer any remedy which carries with it more than doubtful value. I am inclined to the view that the disease is of bacterial origin.

I have almost made up my mind that my patient has done better since all aggressive treatment has been abandoned, especially in the way of irritating applications. If the galvanocautery had been applied a month or six weeks earlier I believe that the story would have been different. When one meets a corneal ulcer along the margin, careful examination should be made to ascertain whether the limbus edge of the ulcer is deeply undermined. If so the cautery should be applied at once, and it might be well to cut away with a delicate pair of scissors the overhanging edges of the ulcer so that parts underneath can be readily reached. If the disease shows no substantial improvement at the end of two months, I think it best to stop all irritating applications and simply continue with atropin and salt solution irrigations and tonic treatment. I am not at all satisfied that repeated applications of the galvanocautery are advisable, such applications often being followed by a denser opacity than is produced by the actual ulceration. McNabb states that some of these patients are left with a vision of from 1/6th to 1/4th.

816 Park Avenue.

ABSTRACT OF DISCUSSION

DR. GEORGE E. DE SCHWEINITZ, Philadelphia: Dr. Randolph kindly permitted me to examine the patient whose case history he has just described, and I can do no more than confirm his findings and observations. Once or twice in the last fifteen years I have seen in the wards of the Philadelphia General Hospital ulcers of the cornea in old persons, which in general terms resembled the chronic serpiginous ulcer of Nettleship, but in none of these cases has the undermining of the conjunctival ulcer been so conspicuous a sign as it was in Dr. Randolph's patient, a sign which, as he points out, should be regarded as the chief characteristic of this affection. In other respects the resemblance was close and, so far as I can remember (I have no accurate notes at hand), the results of treatment were conspicuously unsatisfactory. It is always doubtless possible to make a diagnosis of rodent ulcer of the cornea by the chronicity of the process and especially by the undermined corneal edge of the ulcer and the decided and extensive undermining of its conjunctival border. Perhaps the lesion for which it might most readily be mistaken is that corneal disease to which Fuchs has given the name *keratitis marginalis superficialis*, also an affection usually seen in elderly persons, but differing from Mooren's ulcer in that the lesion is more superficial, that the gray line which frames the corneal border is not undermined, that the conjunctival edge is not specially undermined, and that the process never proceeds to the center of the cornea. Like Mooren's ulcer, it is chronic in type and subject to many relapses and intermissions. (Here the case history of the patient, with ulceration of the cornea, with final loss of the eye, bearing resemblance in some respects to *keratitis marginalis superficialis*, and in other respects to Mooren's ulcer was recited. The exciting cause of the trouble was attributed by the patient to exposure to *x*-rays.)

Microscopic examination of eyes the subject of rodent ulcer has thrown no light on the etiologic factor, and Andrade's rod-like bacillus which he found has not, I believe, been confirmed. Parsons has examined several cases of Mooren's ulcer, but failed to find this bacillus in any other specific micro-organism. Fuch's statement that destruction of the margin of the ulcer with the actual cautery will in most cases result in a cure, seems to me too optimistic. With nitric acid, recommended by Jackson, I have had no experience. I have thought that should the opportunity present itself, after cutting away the conjunctival edge of the ulcer and thoroughly applying the actual cautery, I would cover the cornea with a conjunctival flap after the manner of Kuhnt, or entirely, according to the De Wecker method of managing large wounds of the cornea. Such a procedure could at least do no harm; it might do good.

DR. BARTON PITTS, St. Joseph, Mo.: In my experience in the treatment of all classes of ulcers, there is one sovereign remedy which I have not heard mentioned. When atropin, which is the sheet anchor of the therapeutic agents, fails, and the galvanocautery is resorted to, which comes next, my experience is that the actual cautery far surpasses the galvanocautery. I use a strabismus hook and an alcohol lamp and get a decidedly more beneficial effect, and I account for this on the ground that it is not so intense. I have tried the galvanocautery and it cuts like a knife. In these ulcers of the cornea, or rodent ulcers, which I think are simply another class of serpiginous ulcers, with the actual heat, one gets a more decided and beneficial reaction. I do not put much confidence in the galvanocautery; the sovereign remedy in my opinion is paracentesis. I do not think I ever lost an eye entirely in which paracentesis was resorted to, particularly if used early. I know I have never regretted the procedure, but I have regretted postponing it. With a free corneal incision through the base of the ulcer the reaction is immediate. Not simply in the mild form, but even in hopeless, purulent cases, and in cases of gonorrheal origin, I have often obtained a reasonable amount of vision.

DR. J. A. DONOVAN, Butte, Mont.: Recently I had a patient with ulcer who had been treated by an ophthalmic surgeon for two months before he was referred to me. The ulcer was about 2 or 3 mm. in width all around the edge of and completely encircling the cornea. When the man first came, I used the electrocautery according to the method described in a recent number of *Ophthalmology* and checked it. For two months or so it remained stationary, but the last two weeks rapidly increased in size. I had to leave town and I gave my assistant instructions to use nitric acid in case it was not checked. For some time back I had been using the red iodid of mercury ointment and used 1 to 5,000 strength with him, instructing the assistant to increase the strength; when I got back my assistant had got up to 1 to 2,000. That put the ulcer under control for a little while, and not having the electrocautery at hand, I then used the heated probe. I found a difference, but I cauterized a second time and still did not control it. I kept on using the 1 to 2,000 ointment of mercuric iodid as a sort of forlorn hope and gave an almost absolutely bad prognosis. The ulcer was spreading in from all sides. In the course of three weeks I could see a little vessel growing in from the nasal side, and a day or two before leaving home the ulcer was checked, leaving in the center 3 mm. of clear cornea, and I give the credit to the mercuric iodid ointment. I generally use 1 to 5,000, but with this patient used 1 to 2,000 four times a day. It caused severe pain twice after having been used several days, but by omitting it once or twice it was resumed without further trouble.

DR. H. GIFFORD, Omaha: Mooren's ulcer is very rare. I have only seen one case. A man had been struck with the tail of a cow and came to me after the ulcer had been going on for a couple of weeks. It looked like a mild, simple ulcer, involving about the lower third of the cornea, but there was very little reaction; it did not get deep, and I thought it was going to be easy to cure with good sight. To my surprise, it

kept on until it involved nearly the whole cornea. Then I found that the conjunctiva was undermined for about 3/32 of an inch beyond the limbus. I immediately cut off all of the loose conjunctiva and then cauterized very freely clear down to the sclera all the cornea affected and all the area denuded. From that time on the ulcer made no further progress. Therefore, I feel like urging you not to run the cautery under the pocket, but to cut the conjunctiva away as Dr. de Schweinitz and Dr. Randolph have suggested, and then use the cautery freely. As to whether Dr. de Schweinitz's idea of covering the cornea with the conjunctiva would pan out I am not certain. Here are germs which show a particular predilection for growing under the conjunctiva, and if you do not destroy them all they may keep on growing under the flap, if you do not get them out. That is the great objection to covering the cornea with conjunctiva in all ulcerative cornea processes. It may cure, but if it does not, you can not tell what is going on.

DR. R. L. RANDOLPH, Baltimore: A study of the literature of rodent ulcer establishes conclusively the fact that the disease is exceedingly rare, and yet one might infer from what Dr. Pitts has said that he had encountered this affection not infrequently; but in this connection I would like to say that until it is recognized that rodent ulcer is a distinct clinical entity, nothing but confusion will arise as to the diagnosis. I forgot to state that the actual cautery was employed in the form of a platinum loop heated in a Bunsen burner, but with no apparent benefit. Paracentesis was not employed, as I have not been impressed with the value of this operation in corneal inflammations in which I have seen it tried by others, and I would call attention to the fact that paracentesis has been employed by others in this form of corneal ulcer, but with negative result. When the eye was enucleated nearly two months later, the man had light perception and had been troubled with periodic attacks of redness and pain.

PROSTATIC CANCER

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Little of practical value appears in the literature before Oraison's report, in 1903, of twenty-three cases. Ten, or 43 per cent., of the patients were well after four years, 4 died from the operation, and 3 had recurrence. Young, in the following year, gave his report of 6 cases of total extirpation, resulting in 3 patients well after eleven and twelve months, respectively. Two died as a result of the operation and one following lithotripaxy nine months later. A small area of cancerous tissue was found, however, in the pelvis at autopsy. Watson and Cunningham cite Fuller and Czerny's results in two cases of enucleation. Each patient had recurrence, but lived for eleven and nine months, respectively. From a consideration of these results they assert that we are not justified in attempting the operation of extirpation as practiced by Young. Previous articles have been résumés, as a rule, of delayed operations, and these, coming late in the disease, called for extensive dissections and a necessarily high mortality.

Walker places the frequency of prostatic cancer at about 16.5 per cent., while Young's statistics denote one in seven of all cases of enlargement. Figures differ widely for cancer, not only with different surgeons, but with different geographical as well as anatomic areas. It is very apparent, however, that malignancy dominates many of our cases of prostatic enlargement. There will be a great increase in the future, when more who operate for senile hypertrophy subject the tissue removed to a more careful microscopic examination, as cancer here is, at its inception, not easily discernible, necessitating a most careful search in some cases of all parts of the gland. This same care should be exercised at all necropsies of male subjects past middle life.

The growth proceeds more slowly than in other organs, as the lymph supply is meager; further, it is a disease of late adult life, when the lymph circulation at its best is carried on but poorly. The degree of its malignancy is not extreme while it remains confined, though it becomes rapidly fatal after the seat of the disease has been changed to the bones, or, as is often the case, to the internal organs. No one has as yet explained with satisfaction the pathologic significance of the osseous metastases common to carcinoma of the thyroid, the mammary and prostatic glands. Hawley accepts von Eiselsberg's theory for carcinoma of the thyroid, that the veins are the source of all dissemination for cancer of the prostate as well, and to substantiate his belief states that the prostatic veins are often the seat of phleboliths.

The adverse criticism applied in the past to operative procedures for prostatic cancer have not been wholly unjustified because of the lack of attempts at early diagnosis, or recognizing the difficulty in this to appreciate the fact that the large percentage of senile hypertrophies which become malignant justified earlier operative interference.

The earliest symptoms of prostatic cancer are identical with those of senile hypertrophy. It is very apparent that those cases with an infiltration predominating from the first have certain characteristics evidenced by cystoscopic examination of the bladder base and digital examination of the seminal vesicles. This, however, is after the invasion has gone beyond the capsule and can hardly be regarded as early in the disease. How often the malignant process is grafted on hypertrophy we do not know, but, considering that senile hypertrophy is found in about one-third of all men past sixty, the number of cases reported undergoing degeneration in the past would indicate a large ratio between the two. Whether malignancy is suspected or not, the hemolytic action of the blood should be studied in all cases; although not accurate, according to Crile, in over 85 per cent., it should be carried out as a routine procedure. The clinician is dependent on microscopic investigation for an exact differential diagnosis, and this examination should be made at the time of operation by means of the frozen section. Under certain conditions, when an extensive pathologic examination can not be made immediately, or a more thorough subsequent search reveals cancer, the operation may be performed at two sittings. In those cases in which the lobes enucleate easily with the finger, if a malignant process exists, it will be confined to the interior of the lobe or lobes and the necessity of a more radical operation will not be apparent. This responsibility, however, must rest with the surgeon at the time of operation. Just as we have come to know the danger of leaving benign growths of the mammæ, so must the profession regard the prostate, for innocent enlargement does not always remain benign and there is little satisfaction in the oft-repeated statement, "a patient bears catheter life well" if his forbearance brings him to a state of cachexia.

A lowering of the high mortality of the past will not come from the perfection of operative procedures alone, but through the knowledge of the efficacy of early intervention. Surgical work is of as little avail on the prostate as on the mammary gland, if we wait for conclusive symptoms before we interfere.

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Sufficient time has not elapsed for me to report final results in the following series of cases; suffice it to say that the death of the patient whose pathologic report is No. 4 was the only hospital death. The chief object of the paper being to report the prevalence of cancer among patients coming to the University Hospital for prostatic enlargement, the series on which this paper is based began with the opening of the college year in September, and numbers 20 cases, 15 of which were simple hypertrophies incident to old age, while the remaining 5 were carcinomas. I am indebted to Dr. A. S. Warthin for the following pathologic description of these 5 cases.

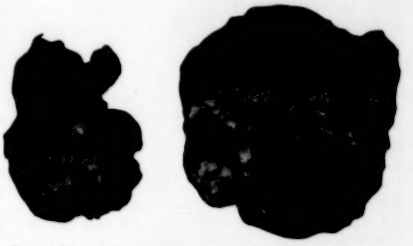
CASE 1.—The patient was 71 years old: was operated on Dec. 5, 1908. In the glands removed the normal prostatic tissue was largely replaced by dense fibrous connective tissue containing small atypical islands of cells, many of these retaining a gland arrangement. The epithelial cells of this gland space were very atypical and there was definite infiltration of the surrounding connective tissue. Portions of the gland remaining showed epithelial hyperplasia. In the connective tissue there were many corpora amyplacea apparently embodied in the connective tissue but surrounded by a layer of atrophic cells. The connective tissue was hyperplastic throughout; showed many areas of small round-cell infiltration, and there was a new formation of blood vessels. Diagnosis: adenocarcinoma.

CASE 2.—The patient was 53 years old, and was operated on Jan. 21, 1909. Microscopic examination of the specimen removed showed very little normal gland structure left, the greater part of the gland being replaced by carcinoma tissue showing a dense stroma infiltrated with very small spheroidal cells of epithelial type. In some areas there was slight preservation of a gland structure. Large prostatic ducts were seen scattered throughout the gland, and a few small areas of gland tissue showing dilated acini, filled with corpora amylacea, were present. There was distinct evidence of infiltration outside the capsule. Microscopic diagnosis: Carcinoma, partly of the type of scirrhosum, partly of the type of an adenocarcinoma.

This is an interesting case from the fact that the patient showed vertebral secondary lesions before leaving the hospital. He had catheterized himself twice daily for two years, but as he had neither cystitis nor the pain and inconvenience which accompany it, his previous decision has been to let well enough alone. The second afternoon following his operation he had a violent chill and his temperature rose quickly to 104 F. His pulse, at first thready and rapid, became imperceptible at the wrist. He was *in extremis* for eight hours, but rallied after the intravenous injection of 72 ounces of normal saline solution and 10 ounces subcutaneously into each breast. The extent of the infiltration into the bladder wall precluded any attempt to remove it completely, and only palliative measures could be employed. Although the growth was large it had influenced a powerful constitution but little, so that the loss of a small amount of blood at the time of operation could not account for his postoperative symptoms, which I think must be explained from the standpoint of reflex irritation to the central nervous system. The osseous complication manifested itself in a bony prominence at the ninth and tenth dorsal segments.

CASE 3.—The patient, aged 56, was operated on Jan. 5, 1909. The prostate showed marked glandular hyperplasia with papilliferous ingrowth into the dilated glands and an almost complete loss of normal structure. Corpora amylacea were present in some of the dilated acini. The stroma was greatly increased and throughout the stroma there were atypical nests of epithelial cells preserving slightly a gland type. These new-formed glands were, however, wholly atypical and presented the picture of an adenocarcinoma. There were large areas of large-celled infiltration scattered throughout the tissue. Diagnosis: Adenocarcinoma.

CASE 4.—The patient, aged 78, was operated on Jan. 28, 1909. This operation, like the other four, was by the perineal route. Two very large lateral lobes (see illustration) were easily enucleated with the finger. The right lobe was much the larger, measuring 3½ inches by its greatest diameter. After careful search the median lobe could not be found, and it was decided that it came away with the left lobe. Either this conclusion was erroneous or a nodule of the other lobes was left behind, involved secondarily in a malignant process, which was overlooked at the time of operation. The portion of prostate removed at operation showed only the picture of a marked glandular and cystic hyperplasia. The portion of the prostate examined at autopsy showed, on microscopic examination, an infiltration of squamous-celled carcinoma extending into the prostate and partly replacing it, the growth being apparently along the ducts. It was impossible to say whether this carcinoma was primary in the bladder or in the prostate. From the character of the cells it was more probable that it was a primary bladder or urethral carcinoma rather than primary in the prostate. This case is interesting



Lateral lobes of the prostate, enucleated as described in Case 4; right lobe on right in illustration.

in showing the difficulty of a reliable diagnosis in those glands having first a senile hypertrophy followed by a malignant process and further a secondary involvement of glandular tissue from the bladder or the urethra. This patient died eighteen days after operation from purulent cystitis and chronic nephritis.

CASE 5.—The patient, aged 68, was operated on April 9, 1909. There was marked chronic inflammation, fibroid hyperplasia and slight atypical changes in a few glands. The specimen was perhaps beginning carcinoma. Suspicious.

The number of extirpations reported is too small to establish the superiority of this method as a conservative measure over that of enucleation. It must also be admitted that the latter can be regarded as only a palliative measure when the infiltration has invaded the capsule, but unless we can report cures by extirpation, or at least prolong life in a certain number of instances, we must confine ourselves in the future to palliation. To admit this seems hardly to conform to progressive surgery, and I think extirpation must be the operation of choice in selected cases of capsular invasion.

Goodspeed Building.

Stenosis of Aorta in the Young Free from Rheumatism.—L. Gallavardin reports three cases, and refers to others confirming the existence of a form of stenosis of the aorta, not congenital and not due to rheumatism or atheroma. This fourth variety of aortic stenosis occurs in the young, generally in a pure form, and the tolerance for it is remarkable. Its origin is obscure, but probably it is acquired, a relic of some subacute or chronic endocarditis in childhood or adolescence, of unknown cause. In one of his cases the stenosis was an accidental discovery at the age of 22 and seemed to cause no disturbance. In the second case, the stenosis, accidentally noticed at 20, caused no disturbance until 30, when functional symptoms developed, proving fatal. The same history applies also to the third case, discovery at 20, with gradual development of functional disturbances, but still mild at 31. His article is published in the *Lyon Médical*, Jan. 10, 1909.

THE APPEARANCE OF PELLAGRA IN THE UNITED STATES *

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WILMINGTON, N. C.

HISTORY OF THE DISEASE

It is probable that pellagra existed for many years in Europe before its recognition as a distinct disease. For many years it was considered an unusual manifestation of some other disease such as scurvy or leprosy. The first indication of the disease in literature was made by Ramazzini, who called it *mal del padrone*. In 1730 Gaspard Casal, a physician of the Asturias, described pellagra under the name *lepra asturiensis*. This name is accounted for by the fact that leprosy was at that time prevalent in the Asturias and Casal considered pellagra a manifestation of leprosy. Another author accredits the name *lepra scorbutica* to Casal. Soon after this it was noted in Galatia, and somewhat later in Castile, Rome and Aragon. Among the people it was variously designated as *mal de la rosa, mal del sole,* or *mal de la misera*. About 1750 the northern provinces of Italy, chiefly in the neighborhood of the Lago Maggiore, became its chief seat and seemed to furnish a much more favorable field for its extension, and, while the disease was still present in the lower Spanish provinces, it never made the same headway there.

Frapolli was the first to apply the name "pellagra" (Italian *pelle agra*—rough skin). This was about 1771. Frapolli asserted that the disease pellarella, which had been known for many years, was identical with pellagra, and that it was present before the introduction of Indian corn from America. Contemporaneously with Frapolli the disease was described by Odoardi in Venetia and called by him *scorbutus alpinus*. Somewhat later Puyati did important work in showing that all these descriptions and names were for one and the same disease—pellagra.

By 1784 the disease had reached such proportions and the people had become so aroused that the Joseph II Pellagra Asylum was established in Legnano under royal authority and the elder Strombio placed in charge of it. Strombio's work was of the greatest importance and a decided advance in the study of the disease.

By the close of the eighteenth century pellagra had extended into Liguria and Piedmont. In 1818 Hamea, the elder, described it under the name *mal de la teste*, because occurring in the neighborhood of Teste, and it was at this time that the people bestowed the appropriate name *mal de la misera*. It was also known as *dartres malignes, mal de sainte-Rose, mal de la sainte-Marie* and numerous other names of similar character.

Roumania, which is now a stronghold for pellagra, had no recorded case until 1810. This date is associated with the introduction of Indian corn from Italy in coastwise vessels. In 1836 Varnow described it in his inaugural dissertation, and in 1858 Julius Theodori did likewise. The people knew the disease by the name of *Buba Tranjilar*.

In 1826 Marchand recorded the appearance of pellagra in the southern provinces of France, especially in the rural districts, in the Gironde, in the Pyrenees, and in the Haut-Garonne and the Aude. Recently in these districts it has been greatly reduced, presumably because the corn culture has largely given place to the cultivation of other grain for which the soil is better suited.

In more recent years Bouchard described the disease in Mexico. It has occurred in Brazil, Argentine Republic, Uruguay, and also in Africa. There have been sporadic cases reported from the Tyrol, Servia, Bulgaria, Greece, Asia Minor, and one case from England. In the sixties Gray of New York and De Wolfe of Nova Scotia reported sporadic cases, but the correctness of the diagnosis was questioned.

Pellagra has without doubt existed in this country for many years, but the appearance must necessarily have been sporadic, for no death-dealing pestilence such as the acute pellagra now so prevalent in the southern states could have been long overlooked.

In 1883 Sherwell reported a case in New York. The patient was a Genoese sailor.

In 1902 Harris of Georgia reported a case simulating pellagra in which he found abundant hookworms. From the description the case must have been well-defined pellagra.

We are indebted to G. H. Searcy of Alabama for the first positive report. He recorded an epidemic of 88 cases occurring in the State Hospital for Colored Insane at Mount Vernon. Of this number 57 patients died. In 1907 J. T. Searcy reported 9 cases from the Bryce Hospital in Alabama. T. C. Merrill in 1907 reported a sporadic case from Texas. Recently, before the medical section of the American Medical Association, R. H. Bellamy reported ten cases seen by him in Wilmington. Bellamy and J. B. Wright of Lincolnton were the first to recognize the disease in North Carolina, and did so before the appearance of Searcy's paper.

Moore has recently reported a case from Augusta, Georgia. Babcock's report to the South Carolina Board of Health aroused much interest in the matter. He described twelve typical cases.

At the 1907 session of the American Medical Association I reported a series of cases under the title of "Symmetrical Gangrene of the Skin," not recognizing their identity with pellagra. I suspected that malaria played a part in the causation of the skin lesion.

In Europe at the present time the chief seats of the disease are northern and central Italy and Roumania. The disease is endemic between 42 and 46 degrees north latitude, 11 degrees west and 26 degrees east longitude of Paris. Several small foci are not included in this area.

In 1879 the number of cases in Italy was 97,855. About this time in Venetia among 10,000 deaths 500 were due to pellagra. Since 1881 the number has declined materially, supposedly owing to the strenuous efforts on the part of the government in the more careful inspection of Indian corn and in the improvement of the general hygienic conditions. Next to Venetia stands Lombardy, with 300 deaths, then Emilia, with 200 deaths. Piedmont, Umbria, and Tuscany attribute over 5 per cent. of all deaths to pellagra. Neusser asserted that in 1886 in Venice, with a population of 36,588 natives, there were 1,086 cases of pellagra.

In Roumania in 1885 there were 10,626 cases; in 1886, 19,797 cases out of a population of 5,300,000. In 1892 there were 4,500 cases, in 1898 21,272 cases. Triller says that in 1906 in Roumania there were 30,000 pellagrins. From 1893 to 1898 Sandwith reported 500 cases at the Kase el Ainy Hospital in Cairo. In Algiers the disease is well distributed. Triller's idea of the extent of the disease is amazing. He states that in certain parts of Italy in 1906 from 30 to 50 per cent. of the population were affected: that in 1899 the number of cases in all Italy reached 73,000, which was more

* Read by invitation before the College of Physicians of Philadelphia.

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than 10 per 1,000 of the rural population. Tuczek asserted that in 1884 there were 10,000 pellagrins in Italian institutions.

Pellagra has extended with great rapidity throughout the south during the past few years. It has been reported from North Carolina, South Carolina, Georgia, Alabama and Texas. I have been able to find reports of 200 cases. Of this number 88 are from the above-mentioned epidemic reported by Searcy in Alabama, 25 are at present under the care of J. W. Babcock at the State Hospital for the Insane in Columbia, S. C.; 12 were reported by McCampbell from the Western North Carolina Hospital for the Insane and 3 from the North Carolina State Hospital for the Insane under the care of J. H. McKee. In all 65 cases have been recognized in North Carolina; of these, 25 have occurred in New Hanover county, with a population of about 40,000.

The disease appears essentially in two forms. In one, the chronic, we have the typical picture described by the Italians: symmetrical erythema, especially of the exposed portions of the body, which appears usually in the spring associated with stomatitis, diarrhea, often some gastric disturbances, and followed by cord symptoms of various kinds, and finally by mental disturbances of varying degree and cachexia. As summer advances the symptoms usually disappear, only to reappear with the following spring. With each recurrence the impression on the nervous system becomes more indelible, the cachexia more marked, and the skin more atrophic and discolored. The average duration of these cases in Italy is five years, though not infrequently the duration is twenty years. One of Tuczek's cases was diagnosed as pellagra in 1851 and the patient died of bronchopneumonia in 1887.

REPORTS OF CASES

The cases here described are illustrative of previously unreported cases, all of which came under my personal observation in North Carolina.

CASE 1.—(Dr. Thomas M. Green's case).—*Patient.*—Mrs. W., aged 34. Nothing of note in her family or early personal history except malaria. In the spring of 1906 she suffered with indigestion and diarrhea. One month after the occurrence of these disturbances an erythema appeared on the backs of her hands, around both eyes, and on the back of the neck which much resembled sunburn. During the summer her condition became improved. In the spring of 1907 she suffered a recurrence similar to what she had had in 1906.

Examination.—In May, 1908, her condition was as follows: A poorly nourished, cachectic woman appearing much older than her real age. Situated on her forehead were two areas of desquamating erythema, symmetrical in position, shape and size, between which was a vertical strip of normal skin. Lesions of like character surrounded both eyes. On the upper lids the lesions were more recent and were covered with crusts with a weeping surface beneath, extending into the anterior nares. The lesions were present below the eyes. There was considerable brownish pigmentation indicating their greater age. On the backs of both hands extending from the finger-nails to the middle of the forearm there existed the moist lesions which were covered with crusts. Over the knuckles and the tip of the styloid the condition was exaggerated, the surface being entirely raw. The lesion was present on the anterior surface and the palms and like the posterior except that the skin of the palms was simply erythematous with exfoliation. Near the margins of the arm lesions there was considerable brownish pigmentation. On the back of the neck was a much older lesion which had caused a tawny discoloration, which posteriorly was about two inches in width but became narrowed as it extended anteriorly. From the two sides the lesion lacked two inches of meeting in front, forming a sort of collar. The labia were affected with a moist lesion. The patient had had an obstinate diarrhea and stomatitis. Physical examination was negative. The urine contained a small amount of albumin and granular casts. The blood showed a simple anemia of moderate degree and no leucocytosis. The differential leucocyte count showed no abnormal variations.

Course of Disease.—When first seen this patient presented the picture of profound melancholia. As her condition became worse her mental state changed to one of wildest mania, making it necessary to restrain her forcibly to prevent her from leaving her bed. She never spoke, but made incoherent cries and presented the spectacle of great fear. She refused nourishment when it was offered but would take it if it were left at her side. Her whole body was in a condition of tonic spasm. In her mania the crusts had been rubbed off from the diseased

Fig. 1.—Patient 6; pellagrous lesions on face and hands.

areas and the bleeding surfaces made her a loathsome patient. She died about two weeks after her admission to the hospital.

Autopsy.—There were general fatty changes in the liver with slight increase in connective tissue around the blood vessels. There was also a slight round-cell infiltration. The capsule was thickened. The kidneys showed moderately advanced interstitial changes. The spleen and adrenals were negative. The changes in the cord were inconsiderable and indefinite save for obliteration of the central canal. The case was not sufficiently chronic to have produced very characteristic nervous changes.

CASE 2.—(Dr. J. B. Wright's case, Lincolnton, N. C.).—X., female, white, aged 11. This patient belonged to the better class. The course of the disease was typical except that she had four attacks in six years, dying in the fourth when 17 years of age. The four attacks began each time in March.

The erythematous recurrences of pellagra usually occur yearly and almost invariably in the spring. One of my earlier cases presented an interesting deviation from this rule.

Case 3.—*Patient.*—A. R., white, married, aged 46, a grocer. His family and previous history were both negative. He was a magnificent specimen of vigorous, robust manhood. The condition was ushered in with high fever without prodrome—probably an attack of malaria—followed by a profuse sweat and apparent recovery. One week later the patient's strange actions attracted his wife's attention. He would ring his own door-bell and appeared dazed, making many absurd mistakes in his business. This was followed by a general apathy. He suffered from no delusions or hallucinations and there were no sudden outbursts. After six months there appeared, in June, 1905, two spots of erythema on the backs of his hands. He suffered at this time from diarrhea and had no control over his bowel or bladder. He would lie quietly in bed. His speech was slow and hesitating and his gait unsteady. His habits were most untidy. The erythematous areas, which were of the dry variety, cleared up and after desquamation the skin was soft and smooth. The patient's mental condition, however, did not

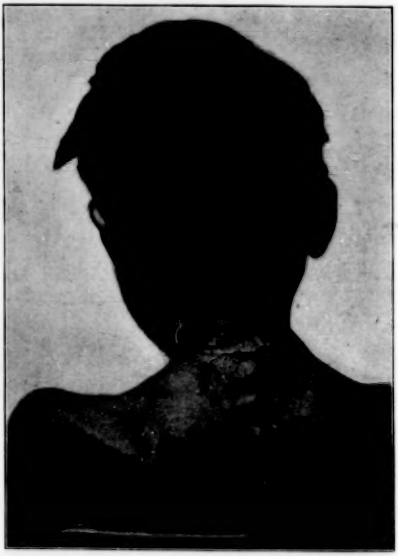

Fig. 2.—Patient 6; pellagrous lesions on back of neck.

improve. In October, 1905, he was admitted to the James Walker Memorial Hospital in Wilmington, N. C.

Examination.—At this time the erythema had reappeared and extended from the ends of his fingers posteriorly to two inches above the wrist joint. The lines of demarcation on the two hands were symmetrical in the most minute detail. There was also a lesion on the external surface of the right leg. This lesion involved the lower third of the lower leg and the external surface of the foot. It had caused considerable destruction of the skin. There was a corresponding lesion of smaller size and of the dry variety on the left leg.

Course of Disease.—This patient's blood presented a remarkable condition. For three weeks the blood was loaded with tertian malarial parasites, and a carefully kept chart showed no rise of temperature. At the end of this time the temperature suddenly rose to 105 and the blood showed the preponderance of quartan parasites. From that time his temperature chart showed remarkable variations and the blood showed the preponderance of first one variety of parasites and then another. In the spring of 1906 this patient had his third attack and died in an epileptiform seizure.

From the beginning a case may be classified as acute or chronic without difficulty. Here is a typical case:

Case 4.—*Patient.*—D. J., female, colored, aged 21, a field hand, was troubled in February, 1908, with a bloody diarrhea, indigestion, globus hystericus, and leucorrhea. After three months the erythema appeared in the "snuff-box" of the right hand. This spot desquamated before the corresponding lesion of the left hand appeared. In June, 1908, she was admitted to the James Walker Memorial Hospital.

Examination.—On the backs of both hands from the finger tips upward was found a dry exfoliating lesion of the skin which was darker than the normal. The upper margins of the two lesions made oblique lines extending from a point at the middle of the forearm internally downward and outward to within one inch of the wrist joint. The same line was carried out anteriorly and the lesion in this respect was unusual. There were small, round symmetrical areas on the upper lids near the inner canthi and at the outer canthi smaller areas. Small areas were found at the angles of the mouth. On the tops of the feet over the ankle joint and also on the tops of the toes were present similar lesions. The patient had never gone without shoes. There was no history of stomatitis.

Course of Disease.—In July the lesions subsided and the patient was discharged. This was her first attack.

It remains to be seen what will be the course of some of our chronic cases; the patients have survived the first attack, and even the second.

The acute or fulminating variety of pellagra called by Lombroso "typhoid" differs widely from the common Italian form. It runs a course usually of three weeks to three months and invariably ends fatally. The patients usually die before any marked nervous changes appear other than those usually incident to a profound acute toxemia. Over 50 per cent. of the cases in the southern states are of this variety. Belmondo and a number of other Italian observers state that this form is never primary; that it is always an exaggeration of a regular recurrence of the chronic form of the disease.

Case 5.—(Dr. R. H. Bellamy's case, Wilmington, N. C.).—*Patient.*—B. B., aged 30, white, married. When first seen the disease had existed for several weeks. The patient was much emaciated and was suffering from an obstinate diarrhea and stomatitis which suggested ptyalism. On the backs of the hands and the posterior surface of the forearms there were found moist exfoliative skin lesions. The same lesions were present on the back of the neck. In the beginning the patient thought he had simple sunburn. In all situations the chief characteristic was absolute symmetry.

After a few weeks this patient died of exhaustion.

Case 6.—(Dr. W. J. H. Bellamy's case, Wilmington, N. C.). *Patient.*—V. S., negro, female, aged 12, was admitted to the James Walker Memorial Hospital in May, 1908. In February there had appeared at the outer canthi of the eyes two small red symmetrical areas. These areas extended over the forehead. It next appeared beneath the angles of the jaws and from there around the neck, meeting behind. Soon after the appearance of the skin lesions there developed a severe stomatitis. The next step in the disease was the appearance of the erythema on the backs of the hands, including the fingers. From the beginning there was always an obstinate diarrhea. In May the patient came under my care.

Examination.—At this time the whole face was covered with the lesion which appeared like an old burn and had caused much contraction, producing thereby an ectropion of both lower lids and distorting the mouth. The patient was unable to open her mouth wide enough to permit any examination; she was also unable to close her eyes completely. Both hands and both lower thirds of the forearms were covered anteriorly and posteriorly with the moist lesion.

Course of Disease.—Conjunctivitis soon developed and there was marked subconjunctival edema. The feet were edematous and later (several weeks) the lesion appeared on the dorsal surfaces. The knee-jerks were absent; skin sensation normal. The pupils reacted normally to light and accommodation. The patient complained constantly of cold. Her appetite at first

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was good but later she refused all nourishment. The affected skin was exfoliated, leaving perfectly raw surfaces. The patient passed eighty round worms during the three weeks she was under observation. She died of exhaustion in June.

In Italy the disease is confined to the peasantry almost exclusively. There poverty and pellagra are interchangeable terms. With us the disease affects all classes alike. In none of the twenty-five cases which I have studied was there a history of a preexisting chronic affection as tuberculosis. As a rule the victims were well-nourished and robust until affected with pellagra.

We have had occasion to consider whether the disease is infectious or contagious, and also whether it is a family disease. The patient just referred to was one of two members of the same family simultaneously affected. The other member was a younger sister, who has the chronic form, and recovered from the first attack. I have seen four children of the same parents affected simultaneously. Two of these patients died suddenly in the first attack. The other two have passed from our observation.

SIGNS AND SYMPTOMS

A prodrome is acknowledged by all writers on pellagra. This prodrome usually begins about Christmas time and is characterized by indefinite symptoms, such as anorexia or voracious appetite, pain and sensation of distension in the epigastric region, frequently diarrhea, though often constipation, insatiable thirst or the reverse. Later there appears headache, which is chiefly occipital, pain in the back and the neck, hyperesthesias, dizziness, muscular weakness, and uncertainty of motion. Roussel considered sensations of dryness and burning in the mouth and heat in the stomach to be the first symptom of the disease. In most respects these symptoms present nothing peculiar, but we have learned that when our patient complains of headache, vertigo, sensations of weakness, especially in the lower extremities, together with diarrhea, we should be suspicious of pellagra, especially if the season be late winter or spring. Theodori asserted that these prepellagrous symptoms existed four weeks before the appearance of the erythema, but in many cases the period is much prolonged.

The erythema almost invariably makes its appearance in the spring. In one series it appeared as early as February and as late as July. The greatest number developed in April and May. The uncovered portions of the body, as the hands, face, and neck, are more apt to be affected and in all cases are first affected. Authorities have always differed in regard to the rôle played by insolation in the causation of the disease. From our experience we are disposed to reject the idea. The disease usually appears so early in the spring that the sun's rays are of little consequence. Those of our patients who had the lesions of the skin of the feet were in most cases adults who were not in the habit of going without shoes. Further, the skin over the sternum is often affected. Some writers think that the actinic rays are responsible for these lesions of the exposed parts of the body.

The backs of the hands are invariably the first situation of the lesions. This occurred in all of our cases. The lesion in this position is very distinctive and usually furnishes sufficient evidence for a positive diagnosis. The first appearance is often mistaken for sunburn; no two things could be more alike. The lines of demarcation between the normal and diseased skin are absolutely symmetrical in position and direction. The points of greatest intensity are usually the skin over the knuckles and tip of the styloid processes. The lesions usually begin at the ends of the fingers posteriorly and extend upward to the junction of the middle and lower thirds of the forearm. The general appearance is usually that of diffuse redness, without swelling, but in some cases the swelling is added and makes its appearance before the erythema. The condition terminates in dry exfoliation or there may appear blebs, which rupture, leaving raw surfaces, which soon become covered by crusts. The appearance of the skin after healing is variable. It may be soft and velvety like an infant's skin, but there is always a tendency to the disposition of pigment, which increases with each recurrence. In three of our cases the lesion extended to the palmar surfaces, and in this position we always noted the soft, smooth condition of the skin after the lesions disappeared.

Fig. 3.—Patient 6; pellagrous lesions of hands.

After the hands the face is most apt to be affected, and we found this much oftener in women and children than in men. Perfect symmetry is maintained here just as in the hand lesions. Often the first appearance on the face is two small spots at the outer canthi of the eyes or the angles of the mouth. In several cases there were two spots of erythema on the forehead, with a narrow strip of normal skin exactly in the mid-line separating them. Sometimes the lesions assume the butterfly shape of lupus. Small areas below the lower lids are frequent. We have seen the lesions on the back of the neck with a maintenance of the same symmetry and often there is lateral extension of these lesions, which may form a collar meeting in front. The next point of selection is the tops of the feet. This occurred in one-third of our cases. In an acute case the erythema had much the appearance of an acute lymphangitis; beginning over the crest of the tibia and extending downward over the tops of the feet to the toes. As before mentioned, the erythema may appear

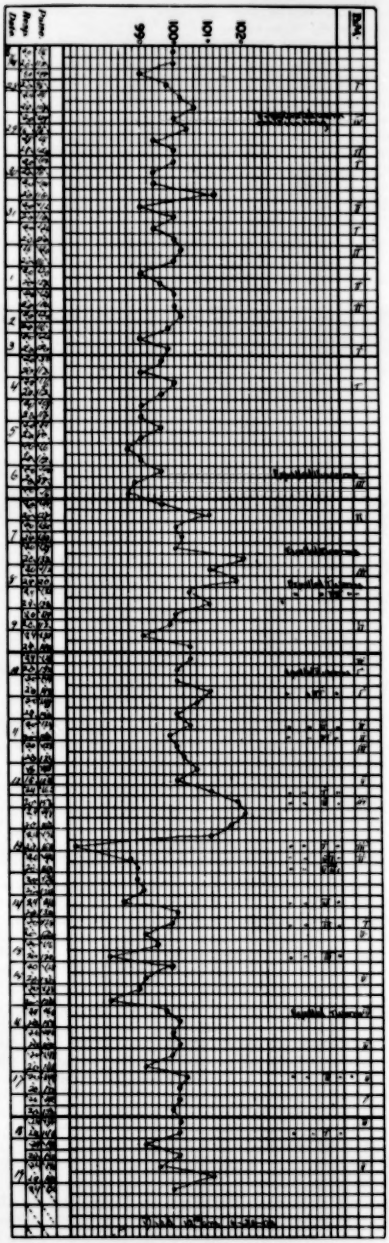

Fig. 4.—Temperature chart of Patient 6.

over the sternum. The labia pudendi are frequent seats of the lesion even in children. With healing there often is associated contraction of the skin as in superficial burns. In Figure 1 marked contraction of the skin of the face is shown, with resulting ectropion and contractions of the skin of the upper and lower lip which made complete closure of the lips impossible. In the dry lesions exfoliation usually occurs after three or four weeks. The resulting pigmentation varies from a slight yellowish tinge to a brown or chocolate, depending on the number of the attacks.

The stomatitis appears usually after the appearance of the skin lesion, sometimes long before, and, again, may be entirely absent. It is a very characteristic symptom and seldom fails to appear at some stage of the disease. It appears like salivation, which, in fact, is often present. The gums are usually swollen and intensely red. The tongue is red and often denuded of epithelium, giving the characteristic "bald tongue." The papillæ are enlarged, with furrows between. The patient complains of the sensation of a salty taste and burning in the mouth. In all our cases the mouth was affected in some degree.

The stomach is variously affected. In some cases the hydrochloric acid is normal in amount, while in others it is absent. Pyrosis, eructations, vomiting, anorexia, or bulimia, together with great thirst, have been emphasized by various writers.

One of the most unfailing symptoms is an obstinate diarrhea, which is most intractable. Sometimes it assumes a dysenteric character with violent colic. This intestinal condition is considered by many to be a neurosis.

In the acute form of the disease the nervous disturbances are no more than ordinarily occur in any profound toxemia. It is difficult to say at what stage the nervous disturbances appear in the chronic variety. In one of the cases previously referred to a robust man developed mental disturbances of a peculiar sort and had been in an institution for the insane a number of months before the first appearance of the pellagrous erythema. I recently discovered the first attack of pellagrous erythema in a woman who for several years had been in a hospital for the insane with a diagnosis of melancholia. Can it be that, apart from pellagrous insanity, the insane are predisposed to the disease?

The first nervous symptoms manifested are usually paresthesias. Chief among those are usually mentioned itching of the backs of the hands and the back, occasionally also of the lower extremities. The patients under my care often complain of pain of a burning character in the right or left scapular region. This latter is a common symptom often referred to. This burning sensation often occurs in the epigastrium, the hands, and the arms, and is supposed to be the cause of the tendency among pellagrins to throw themselves into the water whenever occasion presents itself. Numbness and formication are often complained of. One of the most constant complaints is cold extremities, and it is no unusual sight to find our patients in midsummer huddled before a fire trying to keep warm.

The vertigo of pellagra is a symptom on which much stress is laid by the Italian observers and was seldom wanting in our cases. It is responsible for many falls. By some it is considered a mere lapse of consciousness. According to the careful observations of McCampbell of the Western North Carolina Hospital for the Insane the psychic manifestations were preceded by a period of anxiety and worry with the attachment of undue im-

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portance to trivial things. There is often a simple slowness of ideas. A question is replied to long after the patient seems to have forgotten it. There often occurs an irritable depression with aversion to any activity. Later there develop disturbances of perception with hallucinations. Judgment may be disturbed, giving rise to delusions which usually are painful and depressive, with a tendency toward fear and suspicion.

Our hospital patients were a great care because of their persistence in disarranging the bed-clothes, attempting to get out of bed, and especially in their total disregard of all cleanliness. We were disposed to consider at first this latter as viciousness, but soon learned that it was mental hebetude. Refusal of food and suicidal tendencies were frequent in our series. As the disease approaches its close the patients become delirious and it is usually necessary to resort to the restraining sheet. They frequently cry out in a wild, incoherent fashion, and in their ravings it is impossible to prevent damage to the skin lesions, with the result that large areas are left raw and bleeding. The patient in such cases presents a horrid sight.

A condition is often observed somewhat resembling tetany, with paroxysmal tonic contractions and contractures of the upper and lower extremities in the semi-flexed position. The gait is simple paralytic, occasionally paralytic-spastic, but never ataxic. There is something characteristic, however, in the unsteadiness and seeming lack of confidence with which these people shuffle along. Static ataxia is occasionally mentioned. Incoordination is seldom observed, and then only in the upper extremities. Tremor of the arms, head, and tongue sometimes occurs.

Definite epileptiform attacks with loss of consciousness are occasionally observed, having the character of a cortical epilepsy. One of our patients died in such an attack.

The skin sensibility is very irregular. The sense of taste is usually normal. The cutaneous sensibility to the faradic current is often increased. Sometimes there is decrease of tactile and thermal sense. Owing to the altered condition of the patients' intellect and the resulting unreliable character of the replies to questions an investigation of sensation is unsatisfactory.

The skin reflex is usually normal. The pharyngeal reflex is not infrequently decreased. The tendon reflexes are quite variable, often normal, often increased to the point of an intense clonic contraction. Much less frequently they are decreased or absent. It sometimes occurs that the reflex is increased in the lower extremity and normal in the upper extremity. In Tuczek's 300 cases one-half had increase in the knee-jerk up to the rapid patellar clonus even with the slightest percussion of the tendon. In thirty-five cases there was dorsal clonus and increase of the tendon reflex of the upper extremity. In eight cases the knee-jerks were absent and in the remaining it was partly lessened and partly normal. Differences in the two sides were often noted.

Among the vasomotor disturbances is described a vasoparalytic dilatation of the veins and capillaries and not infrequently œdema. The skin lesions are usually counted as trophic disturbances.

Pellagra is usually described as a feverless disease. Our charts show that during the active stage there is invariably a rise of temperature ranging from 99.5 F. to 102 F.

The urine is alkaline and deficient in phosphates. When the toxemia is intense there is albuminuria.

What is called by most writers the third stage is characterized by a general atrophy of the whole body; the subcutaneous fat disappears and the patients present the appearance of advanced cachexia. Profound weakness necessitates rest in bed. The bladder becomes paralyzed and the diarrhea is uncontrollable. Death is usually directly attributable to myocardial degeneration and its consequences.

In the very chronic cases there is frequently an acute terminal exacerbation, and it is this condition that the Italians have in mind when they speak of the "typhoid" pellagra. Evidently they are not familiar with the acute pellagra so common with us. This explains Belmondo's statement that "typhoid" pellagra is never primary, but merely an exacerbation of a very chronic case. It is in this terminal condition that the delirium is so wild. Tuczek states that at autopsy fever could be found to have been due to a bronchopneumonia. In our experience there is just as much cause for fever in pellagra as there is for fever in a large superficial burn which has become infected.

PELLAGRA SINE PELLAGRA

"Pellagra sine pellagra" or pellagra without skin manifestations is a point of contention. Some observers consider erythema or atrophy and pigmentation of the skin essential for the diagnosis. Babcock, in South Carolina, at the present time, has a number of such cases under his care. He says these patients have stomatitis, diarrhea and disturbances of the nervous system. My own experience is too limited to make the diagnosis without reserve. However, I have under my care several cases which I have diagnosed as "pellagra sine pellagra." One of these patients gives the following history:

CASE 7.—Mrs. O., aged 58, was seized with a peculiar attack which was thought to be apoplectiform. She recovered from the attack but was never quite well afterward. She had repeated obstinate attacks of stomatitis and diarrhea. Five years after the first attack the patient, now aged 63, is bedridden on account of profound weakness. She has an obstinate diarrhea and is quite emaciated. There is no erythema. She replies to questions with marked tardiness. The patellar reflex is absent. The pupils react to light and accommodation in rather an exaggerated degree.

I am convinced that in many of the so-called cases of "pellagra sine pellagra" there is or has been a very mild erythema which is not visible at the time when the patient comes under observation. All writers on pellagra state that the extent of the erythema is no index to the severity of the disease.

CASE 8.—Recently there came under my care a white woman aged 46, mother of eight children, with a negative family history and nothing of note in her previous medical history. In July of this year she had an acute gastritis which was quite severe in character. Soon after this she developed diarrhea and later a severe stomatitis. She made a slow recovery. During convalescence the palms of her hands and the soles of her feet desquamated. On close inquiry I elicited the fact that early in her sickness her hands had a purplish cast which attracted attention at the time. Careful examination showed the last remnant of the upper border of what must have been the pellagrous erythema. Certainly the lesion was very inconspicuous. At present this patient is a great sufferer. The pain in her hands and feet is constant and her hands show beginning contractures. She is unable to comb her hair or button her clothes. She walks with great unsteadiness and says she has the sensation of walking on roller skates. Her station is poor. The pupils react sluggishly to light and accommodation. The knee-jerks are greatly exaggerated. Except for increased emotion, the mental condition is little changed. The patient is much emaciated and is losing ground steadily.

Mistakes in the diagnosis are often made owing to the fact that the order of appearance of the symptoms may be entirely reversed. I have seen stomatitis, diarrhea, and all the mental changes appear a year before the first indication of the skin lesion. It is very likely that in "pellagra sine pellagra" sooner or later there will be skin manifestations.

PATHOLOGY

The pathologic changes that occur in pellagra depend largely on the chronicity of the affection. As in ergotism, the most definite changes are in the spinal cord. These changes are just what the symptoms would indicate. In ergotism the posterior root zones are affected, but this does not occur in pellagra. The latter disease shows affections of the lateral rather than the posterior columns. Allbutt says that the weight of the disease falls on the crossed pyramidal tracts; the direct cerebellar tracts are not affected; the cells in the anterior horn are deeply pigmented. The lesions of the posterior columns occur chiefly in the cervical and upper dorsal regions while those of the lateral columns affect the middle and lower third of the dorsal region.

In seven out of the eight autopsies which Tuczek reports the posterior columns were degenerated in seven. In one the degeneration was limited to Goll's column and a medial strip in Burdach's column. In five the degeneration extended throughout the whole length of the cord. In one the lesions were found in the cervical portion alone. In four the dorsal region was the chief seat of the disease. In five the crossed pyramidal tracts were affected. In the first the affected areas extended from the upper cervical to the upper dorsal with degeneration of the cells in the anterior and posterior horns in the middle and lower cervical. There was atrophy of cells in the anterior horns and Clarke's column of the upper dorsal. There was atrophy also of the anterior root fibers. In the second the degeneration of the crossed pyramidal tracts was more intense in the dorsal regions, but extended as high upward as the middle cervical and as low as the upper dorsal. In the third case the lesions extended throughout, but was especially marked in the dorsal portion. In the fourth case the lesion was confined to the dorsal portion, and in the fifth degeneration was massive and limited to the middle cervical portion. Tuczek further found abnormal pigmentation similar to senile changes, especially of the ganglion cells. He considered the presence of hyperemia, anemia and edema, together with the occasional inflammatory affections of the central nervous system coverings, as well as obliteration of the central canal of the cord—all a part of many chronic affections of the nervous system and, while present in pellagra, they should not be considered characteristic.

The changes in the brain are inconspicuous except for occasional fatty degenerations or calcification of the intima of the smaller vessels and pigmentation in the adventitia.

In one of my earlier cases in which, as was above mentioned, an unusual malarial infection was thought to play a part, the tissues were carefully studied by Dr. H. A. Cotton, Superintendent of the New Jersey State Hospital for the Insane. Dr. Cotton reported in part:

> The cortex showed no reaction that could be called pathologic. The topography was unaltered and the elements of the cortex were not affected by the malarial infection. There was probably an excess of pigment in the nerve cells which could be accounted for by the patient's age. The blood vessels appeared a trifle thickened but the fixed cells did not seem altered or to have proliferated at all and the vessels were not increased in number. There was no evidence of general paralysis or other organic affections and no evidence of cerebral syphilis. The plasmodia were very easily seen in the blood stream and in large numbers. The Weigert preparation for medullated fibers did not show any degeneration, but in the Marchi preparation there was a scattered degeneration in both cortex and cord. These scattered degenerations probably only meant that there was some toxic effect of the malarial infection. It was only a very moderate degeneration and of little significance.

The stamp on the nervous system can be discovered only after the disease has existed for years. As all of our cases had run only very short courses, the pathologic changes were not marked.

Pigmentation and fatty degeneration of the thoracic and abdominal organs occur. To this is added atrophy chiefly of the organs innervated by the vagus: the heart, kidneys, spleen, intestines, liver and lungs. There is atrophy also of the coats of the intestine with occasional hyperemia and ulceration of the lower portion.

The pathologic changes seem to be slow degeneration rather than inflammation and is probably not essentially progressive in character.

ETIOLOGY

In 1776 the *Società patriotica di Milano* offered a prize for a solution of the question of the etiology of pellagra and a means to combat it. Marzari, in 1810, suggested the relationship of corn in the etiology. Strombio the elder and Marzari asserted that the corn was deficient in nitrogen because it was sown late and gathered green. Forcher and Roussel asserted that it was a disease of the corn which produced the toxin. Lombroso laid stress on the fact that healed pellagrins when given good corn food became affected again. Pellagrins seem to show a susceptibility at certain seasons of the year for even the smallest quantity of pellagrous material. Corn ordinarily contains many micro-organisms and certain parts of the kernel make an excellent nidus. Lombroso concedes that the best corn is often most diseased, and that the trouble is rather in some noxious agent which uses the corn as a host. The *Acarus farinæ* was supposed to play an important rôle by making a point of entry into the kernel through which the noxious agent entered. Moisture is one of the greatest sources of trouble. The corn, besides being gathered green, is not always carefully handled and is in consequence poorly protected from moisture. It is said that the custom among the Italian peasantry of preserving polenta for days and even weeks, allowing fermentation to occur, is the chief source of danger.

In studying the etiology of the series of cases occurring in my section I was impressed with the fact that practically all of the corn used by the people came from Ohio and Virginia, though in neither of these states had pellagra ever been reported. While by no means ready to accept the corn as the source of the disease, I am of the opinion that, if there is any connection, the noxious agent must appear after the shipping of the corn. Many southern observers attach importance to the heating of the corn which so often occurs in the cars before they are unloaded. Atmospheric conditions probably play an important part.

Last spring I collected three samples of corn which I had reason to suspect of containing pellagrous material. These samples were placed in my laboratory, which during the summer months is a damp place. After an absence of several months I returned to find everything covered with mold. It occurred to me that the conditions were favorable for the development of any fungus.

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and I sent the three samples to the North Carolina Experiment Station. Dr. F. L. Stevens furnished me with the following report:

	Per Cent.
No. 1.—Penicillium	30
Aspergillus	60
Syncephalstrum	10
No. 2.—Aspergillus	70
Penicillium	20
Chætomium	5
Syncephalstrum	5
No. 3.—Mucor	5
Penicillium	45
Aspergillus	50

Dr. Stevens considered each sample a good average grade of corn and suitable for food.

Various molds have been brought forward as the etiologic factor. Most common among these is the *Penicillium crustaceum*, which was not found in any of the corn consumed by my patients.

Lombroso's pellagrozein is said to produce pellagra in animals. While there are toxic symptoms produced, they are not sufficiently typical to be counted as pellagra. Two organisms have been isolated from corn. The first is a short bacillus producing an orange-yellow growth on agar-agar, staining by Gram's method and forming no spores. The cultures are abundant and gelatinous. It does not produce gas. This organism is non-pathogenic. The second bacillus produces spores. On agar-agar it produces faint round colonies, which also grow on glycerin agar. It liquefies gelatin. This bacillus, too, is non-pathogenic to rabbits. Its appearance and characteristics correspond with those of the *Bacillus mesentericus* or with the *Bacillus maidis* of Peltauf and Heider. This organism was isolated from corn-meal and corn bread, as well as from the feces of pellagrins. It is claimed that this organism is also found in the feces of the normal individual.

Majocchi, in 1881, described the *Bacillus maidis* as a very motile organism which he found in the blood of pellagrins in the beginning of the disease. Cuboni found the organism in diseased corn and stated that it resisted the boiling temperature. Peltauf and Heider asserted that the *Bacillus maidis* developed like the *Bacillus mesentericus* or the potato bacillus and that it was not always present in the feces of pellagrins. They considered the organism non-pathogenic, but an alcoholic extract of the corn-meal containing it caused narcosis, paralysis, and death in mice. Babes and Sion produced symptoms resembling pellagra in various animals by the injection of this bacillus. Ballardine, working with the *Sporisorium maidis*, was able to produce in man gastrointestinal symptoms, but his results were not conclusive.

Tizzoni isolated an organism from the blood, cerebrospinal fluid, organs, and feces of pellagrins. With this organism he produced, without question, the disease pellagra in rabbits and guinea-pigs. Tizzoni also found this same organism in two out of nine samples of suspected corn. In these experiments Tizzoni infected 28 animals. Of this number, 4 were infected by mouth, 3 with pellagrous material and 1 with a culture from the blood of a pellagrin. The remaining 24 were infected subcutaneously, 8 with the blood of a pellagrin, 12 with an organism isolated from the feces of a pellagrin and 4 from corn. The disease so produced ran an acute course of from 16 to 50 days and a chronic course from 87 to 105 days. Autopsy showed lesions of the skin and abdominal organs of a hemorrhagic type. The changes in the nervous system were varied and indefinite.

Tizzoni and Panichi, in a previous communication, stated that they could produce the disease experimentally only when, in addition to their inoculations, the animals were fed on corn food.

Lombroso was the chief supporter of the chemical theory of the decomposition of corn as the cause of pellagra. He experimented with great quantities of diseased corn containing *Aspergillus, Rhizopus, Bacillus maidis* and *Ascari*. The dogs on which he experimented were fed milk, bread and flesh, and on the administration of his preparation from the corn the temperature rose and the weight decreased. There usually appeared psychic and muscular torpidity and in some cases anesthesia and tremor. Out of 10 subjects, 7 had diarrhea and in 1 there was an erythema. In all, there were appearances in the dog considered the counterpart of pellagra in man. The feeding of bad corn-meal caused erythema, stupor and dysphagia. Lombroso prepared from the corn an oil, a fluidextract and a tincture. He gave to 12 individuals daily the corn tincture and in 8 cases there was itching of the back and the face and loss of weight, in 5 cases diarrhea, and in 5 cases desquamation. The appearances were not exclusively those of pellagra, and the result is, therefore, not conclusive.

Neusser believes that corn contains a non-toxic glucoside produced by the *Bacillus maidis* and that in the intestine this body is decomposed, producing a toxic substance, but that this occurs only when the bowel is already in a diseased condition. There is not sufficient ground for this view.

Antoniu reported seven subjects fed on diseased corn in addition to meat and cheese. Of this number, several became pellagrous, but even this observation is not counted as conclusive, because the possibility of the victims having been previously pellagrous.

Erba's pellagrozein prepared from bad corn caused convulsions, increased reflexes, narcosis and anesthesia. He noted that in summer his product was more toxic.

Babcock, quoting Sambon, says that the association of pellagra with the eating of maize is too universal to be ignored and that, based on pathology and symptomatology, there is good ground for the hypothesis that pellagra is a protozoan disease allied with trypanosomiasis and syphilis.

I have isolated from the blood of a pellagrin in the active stage of the disease a bacillus. It is probable that it is the same as the very actively motile organism described by Majocchi. My observations on this organism are not sufficient for a detailed report at this time. It is altogether probable, however, that Peltauf and Heider, Cuboni, Majocchi, Tizzoni and myself have found at different times the same organism, and that the varying descriptions are accounted for by the polymorphous properties which have been so well described by Tizzoni. This organism is rightly called a streptobacillus by Tizzoni owing to its very short length, often hard to distinguish from a coccus and again by its tendency to occur in chains. It resists a temperature of 90 C. for one hour.

PROGNOSIS

The prognosis of pellagra in this section is very grave. We have many evidences of the fact that when an infectious disease first appears in a country it is much more malignant than later on. This is well illustrated in the lower mortality among the Japanese troops in their recent war with Russia from beriberi (about 3 per cent.), while in a new country this mortality often reaches 60 per cent. The same condition obtains in

measles and yellow fever outbreaks. Fulminating pellagra is an utterly hopeless disease. The death rate of chronic pellagra is very variable, and it is too soon for us to report definitely on this subject. So far we have not observed a case of longer standing than three years.

TREATMENT

The treatment of acute pellagra is of no avail. We have reason to suspect that the epizootic meningitis among horses is due to the same cause as pellagra in man. If the above-mentioned organism is the cause of pellagra and the horse is susceptible, we have reason to hope that the serum therapy will soon come to our assistance. It has been shown that the blood of a healed pellagrin is curative in guinea-pigs experimentally inoculated with pellagrous material.

In the chronic cases it is possible that a cure may result from the removal of all corn food and general tonic treatment. Atoxyl is much vaunted just now, but in our hands the results have not been so brilliant as reported by the European writers on pellagra.

In closing I wish to express to my fellow practitioners of North Carolina my appreciation of their generous assistance in collecting data for this paper and also to the officials of the James Walker Memorial Hospital for the privileges of their wards.

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THE VITALITY OF THE DENTAL ENAMEL*

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My interest in this subject has been renewed recently by being shown some very beautiful sections and photographs of enamel prepared by Dr. C. Francis Bodecker, of Berlin. The sections were decalcified by the celloidin decalcifying method which stains the tissue at the same time. The photographs were made by the ultraviolet light. These enamel sections were shown me while Dr. Bodecker was visiting America a few months ago, and are the result of his own work on the research of this subject. He very kindly gave me a section that he had prepared by this method, which was very thin, and which was stained to show the semblance of living tissue between the rods of enamel, which he offers as a possible proof of his father's theory that there are living fibers between the enamel rods. I have given to the study of this section close attention and with the highest powers of the microscope at my command. Of the results I shall speak later.

Dr. Bodecker is the son of Prof. C. F. W. Bodecker, the author of "The Anatomy and the Pathology of the Teeth," a work which created considerable discussion among the authorities at the time of its publication in 1894, on account of its acceptance of Professor Heitzmann's peculiar views.

Professor Bodecker believed that the enamel is traversed by fibers of living matter located in the interstices between the enamel rods. He states that the fibers are connected with one another by delicate fibrillæ piercing the enamel rods in a vertical direction. Besides these rectangular unions, he asserts that the basic substance is traversed by a minute network of living matter, that the enamel fibers send conical thorns toward the enamel rods, and that such thorns are visible in all interstices between the enamel rods. He also says that the enamel fibers are continuous on the outer surface with the covering layer of flat epithelium, and, on the inner surface with the dentinal fibers, that the latter connection is either direct or indirect through a network of living matter or through intervening protoplasmic bodies in the interzonal layer.

A promise made several months ago to your Secretary to discuss the subject of the vitality of the enamel is my excuse for the presentation of this paper. It has been a battle-ground for discussion by the forces of the Heitzmann theory, in opposition to eminent authorities both in this country and abroad for many years.

In order that we may understand the subject better, I shall describe the formation of the enamel organ with its layers, as it is formed on the cusps of the dentine germ just before the formation of the dentine-forming cells, the odontoblasts. The ameloblasts appear in the enamel organ over the dentine germ as columns of cells while the outer cells of the dentine germ are as yet simply unaltered connective tissue cells. The enamel organ, at its first stage, is a club-shaped ingrowth from the Malpighian layer of the epithelium into the connective tissue which is covered by it. This appears at about the forty-eighth day of embryonic life. As it forces its way into the connective tissue, it expands at its base, and the cells within are multiplying and differentiating, rapidly assuming a stellate form, and causing an expansion at the base of the organ. As it enlarges, it enfolds the growing dentine germ, covering it on all sides except

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its base, and forming a cap or bell-shaped organ over it. In making a section of it at this time, we shall find that the cells on the periphery of the organ are columnar in form, the columns of cells next the dentine germ are to be the ameloblasts or enamel builders, the internal layer; while those on the outer surface, the external layer, have no known function. Just within the internal and external layers is seen a layer of cells resembling connective tissue, but of epithelial origin. This is a layer called the stratum intermedium. This stratum intermedium is an important layer, appearing to give out to the forming enamel new cells, and also its cement substance, which surrounds the rods. The stellate reticulum, a mass of cells filling the central portion of the enamel organ, is thought to be of slight importance. It supplies the salts of lime to the ameloblasts at beginning calcification, but when calcification is actively going on all of this tissue disappears at that part. The neck of the organ connecting the organ with the stratum Malpighi has absorbed, and the embryonic connective tissue with a rich supply of capillaries is giving its soluble lime directly against the cells of the stratum intermedium to the ameloblasts, where, by a chemical change, not yet fully understood, calcospherites are formed. These, merging together, form the globular bodies within the ameloblasts at the point of calcification, which are to be separate segments of the rods themselves.

At about the end of the second and the beginning of the third month of intrauterine life, in the embryonic tissue of the jaw, we shall find the primary specialization of cells which are to form the dentine germ, and from which come the cells that afterward form the dental pulp. It is in no special zone or layer of this connective tissue that the dental germ is formed, but the formation seems wholly influenced by the contact with an enamel organ. In the presence of this organ, the connective tissue cells become stimulated and active. It would appear as though they offered a resistance to its further growth, and from this resistance the enamel organ was made to surround it. The stimulation and activity of the cells is shown by their rapid growth, which clouds the part at this point, becoming a dense focus of new growth. The tissue is seen to be actively building itself up, and this results in the formation of a papilla, around which the enamel organ is growing like a cap or helmet. The papilla grows to a cusp or cusps, and becomes the dentine germ.

At the end of the third, and at the beginning of the fourth month, the dentine germ is rather a homogeneous structure; round cells are very numerous; they have relatively large nuclei and nucleoli. As the germ assumes the cusp shape, multiplication of cells takes place around the blood vessels, which have formed in the germ, and after this a jelly-like or hyaline layer forms around its outer surface. It will be found that the dental germ will grow into the depressions of its special enamel organ, an incisor, bicuspid, or molar tooth, and these growths will become the dentine cusps. We also notice that the different layers of the enamel organ are now formed, and that the sacculus is forming its layers about both the enamel organ and dentine germ. When this process is completed, these are enclosed in the sac, and thus become a dental follicle. Within the area of this sacculus are contained all of the cells which shall develop later into the mature enamel, dentine, cementum, and pulp of the fully formed tooth. They have all become specialized cells.

The cells just within the dentine germ become richer in protoplasm, and many processes are seen to be forming from them. They are becoming branched cells. A little later the cells at the surface grow larger and assume a columnar shape. We also see just within this layer of cells some that are pear-shaped, conical, cylindrical and spindle-shaped. There are some authorities who have spoken of what they call elementary cells on the outer layers, and from which they say the odontoblasts are formed, but I have never observed anything but globular masses forming, and these are not cells.

At the beginning of the fifth month, these cells on the surface are seen to be undergoing a differentiation as stated above, and are becoming specialized or formative cells, the odontoblasts. They are membraneless and little more than masses of protoplasm, which seem to be filled with great numbers of bright glistening globules of different sizes.

It is at this stage of growth that we look for evidence of the penetration of the process or fiber of the odontoblasts into the as yet uncalcified ameloblasts. And it is at this stage of growth, I would like to impress on your minds, that we have the enamel organ fully formed, and ready to calcify. The internal epithelium, wholly ameloblasts, the real enamel-builders, consist of columnar cells, membraneless, and resting on the cusp of the dentine germ. On the outer surface of the dentine germ the connective tissue cells are differentiating into a columnar formation, and these are to be the dentine-builders, soon to begin the process of calcification; for this process takes place first in the odontoblasts until a calcified cap is formed. After this, the process of calcification takes place in the enamel; but just before calcification we shall find between these formative cells of dentine and enamel a peculiar layer. It is soft and plastic, transparent, and appears structureless. Some have called it a zone of amorphous material. Tomes says that it is the formation of the first skin of dentine, a stage of metamorphosis preparatory to the impregnation with calcareous salts. Its formation has originated from the cells of the dentine germ, and it is formed on its outer surface just before the calcifying process begins. It resembles a borderland tissue. I have recently been studying this structureless layer and the condition existing just previous to the formation of a calcified structure, with the desire of finding out whether a fiber of the odontoblasts can be found to enter enamel tissue. I have found the problem a difficult one from the fact that this structureless layer masks or hides any tissue that may pass into it.

We know that the fibers of the dentine cells do irregularly enter the enamel. I shall demonstrate that. This may be seen in the crown section of almost any human tooth, and these fibers must have pushed their way into the uncalcified enamel cells at this time. I have examined many sections just as calcification was about to begin and I am sure that I have seen the processes of the odontoblasts pass into this structureless layer and out on the enamel side, usually passing in an oblique or irregular line over the ameloblasts in the direction of the stratum intermedium. I have also teased enamel from the dentine at this time and have seen a few of the fibers from the odontoblasts coming through on the outside of the dentine edge. As a general thing, we expect to see in the section the course of the fibers in the dentine end just before the enamel is reached. But the microscope shows that many of these fibers go entirely through the dentine sections and into the enamel substance. I have a number of sections which show dentine fibers enlarged and flattened by pressure, running nearly through the enamel. Their course is not generally with the direction

of the rods. Usually it is an irregular course. Many of the appearances which we have heretofore thought to be cracks in the enamel are really dentinal fibers, which have entered the enamel before calcification began, and have become flattened by pressure so as to give them the appearance of cracks. Dr. Francis Bodecker has noticed this fact, which has never before been described, and has given the fibers the name "enamel lamellæ." He states that the laminæ are sheet-like processes of pure organic matter in which no lime salts have been deposited, originating at the dental margin and passing to the outer boundary of the enamel. These appearances, which Dr. Bodecker describes, I have said were simply flattened dentine processes; they are sometimes traced nearly to the outer surface of the enamel, and in several instances I believe that I have traced them to the outer surface.

The existence of these enlarged and flattened organic fibrils in enamel would account for the peculiar forms of tissue which I found on the slide when I decalcified thin sections of enamel with strong acid. These forms floated about in the acid when all other tissue had apparently disappeared. They were probably the thin sheath tissues of these organic dentine fibrils. When a tissue is partially calcified, as sheath tissue always is, it becomes a transition tissue, no longer wholly organic, but like the partially calcified tissue which Rainey has called calcoglobulin, is not acted on by acids. The sheath of the dentine fibrils in the dentine matrix is composed of this transition tissue, which is so indestructible that it may be found by decalcification even in fossil teeth. The cement substance between the rods is a tissue somewhat of this nature, but it resembles more a colloid substance than it does a true calcoglobulin. These flattened dentine fibrils within the enamel originate, not as Dr. Bodecker states "at the dentinal margin," but from the process of an odontoblast, which has forced its way into the enamel substance before calcification began, and has become enlarged, and is flattened by the pressure of the enamel rods as they are forming and calcifying. And at this time there is considerable pressure. With my present knowledge I can not call the cement substance everywhere filling the space between the enamel rods "organic envelopes," because this cement substance is only partially organic and it is not an envelope. It is partially calcified, and forms a substance which resists the action of the acids to a very considerable extent. It is shown to be a transition tissue, for it wholly calcifies with age. In young teeth the substance will take a faint stain, and one might mistake it for an organic tissue, which I feel sure it is not. In one of his photographs Dr. Francis Bodecker has mistaken a small triangular space as indicating the existence of a so-called envelope for each rod, but this small space is not really a space, but is a small portion of a new forming rod within it, and the cement substance is surrounding that as well as the others. It is a new rod forming to fill up the larger growing outer surface of the enamel. I have seen many of these rods beginning to form in the central portion of the enamel and they begin as small wedge-shaped rods at their base, afterward forming to the normal size. At the junction of the dentine with the enamel there is found evidence of a layer of what appears as living matter, usually so thin as to be hardly perceptible with the high powers of the microscope, but at times forming a perceptible interzonal layer; it is of dentine origin. Very many of the dentinal canals open to this, and send their fibers into it, and some of these fibers are bent in their course within it, and penetrate the enamel substance, not directly across, but a little further on. I have traced these dentinal fibers in this way in many instances. Dr. John L. Bart, in Professor Bodecker's work, makes the misleading statement that the dentinal fibers rarely enter the enamel in the human teeth, but that the reticulum of the dentine is continuous with that of the enamel. This conflicts with the views of Professor Bodecker, who states, in the same work, that the rods of the enamel are on the average half the diameter of the columns of the basic substance in dentine, and that, therefore, four columns of the former will correspond to two of the latter, and that consequently two dentinal fibers will answer to four enamel fibers; also, that at a place of junction of the enamel with the dentine a direct connection is not infrequently seen between the enamel and dentine fibers, and that in many places the dentinal canaliculi, on entering the enamel, suddenly become enlarged. He states further that in the interzonal layer, at the bottom of the bays, we meet fibers occupying curved spaces between dentine and enamel, or we see in a correspondingly bent course protoplasmic bodies directly connected with the dentinal fibers downward, and with the enamel fibers upward.

In my own investigation I have seen all these appearances, but do not understand what is meant by "connecting with enamel fibers." I can find no enamel fibers, as Professor Bodecker would have you to understand, but we shall find only continuation of dental fibers which have penetrated the enamel tissue. After calcification, they are almost never seen to be between the rods, as they are pictured in Professor Bodecker's chapter on enamel. They run almost always irregularly over and across the rods. The section of enamel showing fibers in Dr. Abbott's article, in Bodecker's work, is misleading. It does not show enamel fibers. What it does show is a thin section of enamel, with the cement substance standing out from the rods. The cement substance, being a partially calcified tissue and harder to decalcify than the rod substance, stands out from these rods and causes this appearance.

Dr. Francis Bodecker, in his article[1] entitled "Enamel of the Teeth, Decalcified by the Celloidin Decalcifying Method," recognizes this fact when he says that in the walls of the organic envelopes (cement substance) minute quantities of lime salts are deposited, making perfectly calcified normal human enamel appear to be almost homogeneous; that the first action of the acid in attacking the enamel is to dissolve this deposit in the envelopes (cement substance), causing the individual prisms to become more apparent; but that when this deposit of lime salts has been removed by the action of the acid, however, the organic envelopes (cement substance) are no further acted on.

In this, it will be seen, Dr. Bodecker acknowledges that the cement substance is partially calcified and changed so that acids will not destroy what is left.

Whenever a tissue becomes partially calcified its nature changes; it is no longer an organic tissue. The impregnation of the lime salts has profoundly modified it, so that acids which would destroy an organic tissue will not act on it after the lime has been dissolved. Such tissues are found in the sheath tissues of the dentinal canals, in all borderland tissue, and in a certain modified condition in the cement substance of the enamel. It is in this condition a transition tissue, which has become partially, and will in time become wholly, calci-

1. Dental Review, April, 1906.

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fied. There are many pictures—not from photographs—in Professor Bodecker's chapter on enamel which are misleading. They show in the central portion of the cement substance a regular system of living fibers sending out offshoots anastomosing across the enamel rods with other offshoots from other fibers, and these pictures also show a continuous connection with the processes from the dentine fibers. With my many years of study on the enamel I have never been able to find a trace of such a regular system of living fibers between the enamel rods. And with my present knowledge, based on my investigation, I can not believe that such a system exists. For several years I gave most of my leisure time to investigating this one tissue, making many hundreds of sections, and treating the tissue with every known method of technic in use at that time. As a result in 1888, at Boston, before the Academy of Dental Science, and in 1890 at the International Medical Congress at Berlin I demonstrated for the first time that enamel rods were formed from globular bodies given out from the cell, and not from the calcification of the cell substance itself, as was generally thought at that time. After seeing the beautiful photomicrographs recently made by the use of the ultra-violet ray by Dr. Francis Bodecker I am more than ever convinced that it will be found impossible to demonstrate the existence of a regular system of living enamel fibers between the rods of mature enamel.

Dr. Francis Bodecker has entered the field of research in this subject, and is doing some valuable work with every modern accessory to help him. The sections which he has shown me are the finest that I have ever seen. His photographs made with the use of the ultra-violet ray are exceptionally fine. His section of enamel, spoken of in the early part of my paper, which he had made by the acid celloidin process, is the work of an artist; it is unusually thin and beautifully prepared. It has given me great pleasure to study it. The cement substance is well stained, and to the uninitiated it has a certain semblance to an organic tissue, but we are to take into account this important fact that decalcification has profoundly changed this cement substance. In this condition it is not the same tissue that we should find in a thin section of enamel from a freshly extracted tooth. Here we should see the tissue true to life. In Dr. Bodecker's section the decalcification of its lime has given us a different substance, different from what we should see in an unaltered and uncalcified ground section. I should have been glad to find in this section, within the substance of the cement tissue between the rods, that perfect system of living fibers so beautifully pictured in his father's work. I should also have been glad to find the organic envelopes of which he speaks in his paper already quoted from. But, with the highest powers of the microscope at my command, and after a careful search, I fail to find any convincing proof that either of these tissues exist. The section shows very plainly the narrow stained line of the changed cement substance between where the rods of the enamel were, and a cross-section of this shows the cement substance binding all of the rods together as a continuous tissue, but fails to show any suggestion of these organic envelopes which he says surround each separate rod of the enamel. In the many sections which I have made—and I have recently looked them over very carefully—it has been impossible to trace any signs of the formation of these envelopes; the cementing substance is shown to be continuous, surrounding all rods.

It is a question yet to be decided just how far the cement substance between the enamel rods is a vital tissue. I do not, with my present knowledge, believe that it is a vital tissue, or that it has the same power of vitalization as have the fibers which are formed in the dentinal canals. There can be no question but that in the living tooth it is a partially calcified tissue, a transition tissue, which in old age becomes wholly calcified. It is a tissue so changed chemically that when it has had its lime taken from it by acid it can not readily be further destroyed. It resembles in this, not wholly, but somewhat, the sheath tissue of the dentinal canals, which is not a vitalizing tissue, because within the core of this sheath tissue we can see the vital fiber sending out its anastomosing branches through the sheath tissue to other vital offshoots from other canals. This sheath tissue is also a transition tissue, which becomes calcified into calcified matrix as age comes on.

In conclusion, then, we may assume that the scant vitality found in young enamel is given to it by a very thin organic layer of dentine origin between the dentine and enamel called the interzonal layer, together with an ingrowth of some of the processes of the dental forming cells which have invaded the enamel substance prior to its calcification. In some instances I have found these processes to have persisted in this invasion of the enamel substance so as to reach, or nearly reach, to the outer surface of the fully formed enamel. These invading dentinal processes are exceedingly irregular in their course, seldom following the line of the cement substance, but more often running in an oblique direction across the enamel rods. In a thin section of the cusp of a human tooth we can count nearly forty of these invading dentine fibers. Where they pass into the substance of the enamel they seem to have become flattened and compressed like lamellæ by the force exerted by the rods of the enamel while they were calcifying.

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SOME MINOR POINTS IN THE SURGERY OF CATARACT *

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Methods for the successful extraction of cataract have been so often the subject of discussion that it would seem as though further discussion were superfluous unless one had something both new and tried to offer. Yet the subject has a fascination that increases with experience in operating, and to old-fashioned oculists—those who are capable of treating diseases of the eye as well as the errors of refraction—it is ever one of interest. The compiling of statistics by the great surgeons, the publication of results in 100, 500 or 1,000 consecutive operations, the recitation of accidents and of the means of treating and of preventing them, the dissemination of methods for the avoidance of mistakes, are a great boon to the followers of these surgeons and to the victims of cataract. But the record of failures and the causes of failures by men of large experience would be of more service to the beginner than that of their successes. Unfortunately for the oculist's peace and comfort, he does not bury his failures. They seem to

* Read in the Section on Ophthalmology of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

live forever to tell their tales of woe to sympathetic hearers—oculists and others. Naturally we do not like to publish our mistakes, believing that the publicity given by the victims is quite enough. Yet the story is only half told if the failures are suppressed.

The causes of failures are many. Conspicuous among them stands the inexperience of the operator. With inexperience may be mentioned unsuitable personal habits and insufficient preparation. The beginner must qualify himself by many operations on animal eyes, standing or sitting in the proper relation to the eye, as though it belonged to a human subject, and acquiring accuracy and skilfulness in holding and manipulation of the instruments. Other requisites are good vision, steady hand, perfect illumination, coolness and judgment in difficulties and a full appreciation of his responsibilities. Perhaps the mention of the need of good vision on the part of the operator may seem absurd. It seems inconceivable that any man would approach an operation on the interior of the eye with vision insufficiently acute to give him perfect control of the situation; yet it has happened within my own experience and will happen again. Imperfect vision leads to nervousness and nervousness to disaster. When possible the illumination should be by means of a portable electric lamp of sufficient power, intelligently held by an assistant so that the light shall be reflected into the patient's eye and the surgeon's eyes protected. Thus the annoying corneal reflexes incident to daylight will be avoided. A steady hand is indispensable. If trembling exists its causes should be learned and removed. If it is stage fright the temptation to operate should be resisted until greater familiarity gained by observation of others and repeated practice on animal eyes assures the necessary composure. Intemperance in living, too much smoking or drinking must be controlled and one's habits so regulated that one's physical condition may be fit for the great responsibility assumed. No surgeon has the right to jeopardize the successful result of his operation by thoughtlessness and disregard of precautions. These statements, platitudes though they seem, are worth thinking about and acting on. We operate in sterile gowns, with sterile instruments, using sterile collyria, the field of operation sterile and the body protected by sterile sheets, carrying out with great precision all the regulations suggested in the canons of antiseptic surgery and yet ourselves go to the operating table unprepared and physically unfit.

For patients with uncomplicated senile cataract, long preliminary residence in a hospital or undue postponement of the time appointed for operation is both unnecessary and harmful, particularly to those who are nervous and despondent. The new environment, the consciousness of the impending operation, the isolation of blindness and the fear of the operation and its results induce baneful mental excitation. Twenty-four hours before operation gives sufficient time for thorough physical examination, including urinary analysis and antiseptic preparations; indeed, three or four hours may be enough when one is familiar with the patient's state of health or has had him under observation.

DOES PRELIMINARY IRIDECTOMY CONTRIBUTE TO A SUCCESSFUL RESULT?

Operators who invariably perform simple extraction in uncomplicated cases disbelieve in the procedure of preliminary iridectomy for the assigned reasons that the dangers of two operations are greater than those of one, and that two should be avoided when one will suffice. To the unprejudiced mind this reason is not convincing. The real question is: Are the dangers of the simple or combined extraction less than those of extraction preceded by iridectomy? This subject was fairly presented to the Section by Reber in 1906. The majority of opinions collected by him favored preliminary iridectomy in complicated cataracts, in immature cataracts, and when the patient had but one eye.

A personal expression of opinion may be permitted. I prefer to perform preliminary iridectomy when all conditions permit, the patient's time, his degree of blindness or the length of time he may count on useful vision in the other eye, to a certain extent his social and financial status, his willingness to leave the decision to my judgment or, otherwise expressed, his confidence in me not only as an oculist but as a man who will advise for his patient's best interests. This statement of preference applies to the so-called uncomplicated cataracts, those cases in which most operators do not consider preliminary iridectomy. I believe it is the safest method of operating, else why is it preferred when the patient has but one eye? Iridectomy is a simple procedure and easy to perform. Under complete cocain anesthesia it is absolutely painless. Recovery is prompt and in most cases certain. Prolapse of the iris is almost never seen. Entanglement of the iris in the corneal wound is rare; the wound is small and closes in a few hours. If postoperative inflammation develops it is of milder grade than that following completed extraction. The subsequent extraction is simplified, a decided advantage to both patient and operator. For immature cataracts demanding operation preliminary iridectomy is positively indicated, and I can not agree with those operators who assert that as good visual results can be obtained by other methods, except possibly the extraction of the lens in its capsule.

During the past year I have performed preliminary iridectomy many times, extracting the lens three weeks to three months later. The results have been so satisfactory that I am convinced that the procedure is the operation of choice. I am not positive that the lens grows more rapidly opaque, but I have come to think that the operation may be classified among the ripening operations without their disadvantages. Haessig, whose experience has been very great, says: "Of the operation of extraction after preliminary iridectomy, every phase of the operation, the cystotomy, the expression of the lens, the expulsion of the cortical masses, can be performed without disturbance. The condition of the iris may be readily seen, there is less temptation to squeeze the lids, and undesirable complications—as loss of vitreous, eversion of the corneal flap—are seldom met.[1]

WHEN IS A CATARACT MATURE?

Technically the cataract is ripe when it is entirely opaque. For the purposes of operation (complete extraction) it is mature when the nucleus and the cortex are no longer distinct, but are united into one body, so that after corneal incision, well directed and accurately estimated pressure on the cornea will dislodge and expel the entire lens. In the pathology of cataract this stage is reached when "the lens finally breaks down into a pultaceous mass consisting of drops of fat, Morgagnian

1. Mittellungen ueber die letzten 500 Extract. 1908.

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spheres, remains of lens fibers and an albuminoid liquid; fluid collects in separate vacuoles between the lens substance and the capsule of the lens, finally separating the capsule entirely from the cortex so that the lens can be shelled out of its capsule in cataract extraction."[2] Therefore, the time best adapted for operation is not when the entire lens is opaque, but when it is hard and its different parts adherent to one another and not to the capsule. The occasion of this final culmination of the formation of cataract varies greatly in different individuals and depends both on the underlying cause of the lenticular opacity and on the senility of the patient. Some boys reach maturity at an earlier age than others; some men are older than their years. It is stated in text-books that a cataract is soft before the patient is 25 and hard after 35 years of age. This implies that needling is the proper operation in the former, extraction in the latter. We are led to believe that after 55 or 60 at the latest the lens is hard enough to extract entire, whether opaque or transparent. The constitutional changes incident to advancing years must be considered in their application to cataract and allowance made for individualities.

Miss A., aged 35. Preliminary iridectomy followed in one week by extraction. No lens debris. V. 20/70. Old corneal opacities.

Mr. S., aged 62, iridectomy in February, extraction in June. No complication in either operation. Lens matter in anterior chamber, chronic iridocyclitis and glaucoma.

Thus one patient, at an age long before the lens is believed to be hard enough to extract entire, recovered promptly and fully, and the other, beyond the prescribed age, had a bad result because the lens was not solid. The degree of opacity of the lens is not a substantial basis for judgment of its degree of solidity. I have removed without difficulty an almost transparent lens from the eye of a woman of 55, and I believe the experience is common to find as late as the seventieth year, lenses entirely opaque but with soft and tenacious cortices. My observation has led me to believe that in corpulent patients the lenses harden only very late, while in meager, emaciated persons the lens seems to partake of the sclerosis of other tissues of the body. The influence of intraocular disease in hardening the lens is problematic. That it induces opacity is well known, but the process is one of degeneration from malnutrition rather than a sclerosis. The answer, then, to the question, "When is a cataract mature"? resolves itself into the simple statement: The proper time for the extraction is to be determined by the degree of the loss of vision. Extraction may be performed at any age, the condition present in each individual case to decide the method adopted.

POINTS IN REGARD TO METHOD

Of the unavoidable causes of failure, such as intraocular hemorrhage, uncontrollable patient, coughing, disease of the eyeground, infection, postoperative delirium and accidents therefrom, it is beside the purpose of this paper to speak. The number of losses may be materially reduced by the operator's impersonal consideration of the qualities of character and temperament and the ocular and bodily health of the patient. For example, in the preliminary training, he may learn the chances of the patient's will or power to rotate the cornea downward. If these are unfavorable, general anesthesia should replace cocain anesthesia. It is my custom to assure my patient that if he will do as I tell him he will positively have no pain and, in all probability, a successful result, but that it is essential to success that I have his cooperation.

The speculum is left in place throughout the entire operation provided I see no indication of loss of vitreous, but in about 50 per cent. of cases I remove it after the capsulotomy. The indications are restlessness, pressure by the speculum on the ball, gaping of the wound and a sight of the vitreous in close proximity to the posterior lip. An assistant's services should be confined, in the case of obedient patients, to handing the instruments in their order to the operator. It is quite unnecessary for him to aid in the operation itself. Fixation is made during the section only; iridectomy and capsulotomy are more safely made without fixation. Expulsion of the lens is satisfactorily accomplished by pressure through the lower lid, and, as an accessory, if advisable, a spoon placed against the sclera posterior to the wound. The toilet is a matter of great importance. Its function is not only to restore the pillars of the coloboma but to cleanse the wound of lens matter, invisible shreds of capsule and clots of blood. Imperfect toilet means delayed union, cystoid cicatrix, and possibly infection. Lens debris not capable of removal by manipulation may be washed out by warm salt solution forcibly injected into the anterior chamber by a small-mouthed pipette, and if, after convalescence is well established, the anterior chamber still contains flocculi, dionin in increasing strength will bring about their absorption.

In conclusion, a word concerning imperfect local anesthesia—a prolific cause of accident. A 4 per cent. solution of cocain hydrochlorate applied freely to the conjunctival sac four times at intervals of four minutes, the lid closed after each instillation, insures complete anesthesia of the conjunctiva, cornea and iris. The corneal epithelium is not disturbed nor is the tension of the ball altered. The partial dilatation of the pupil is not a disadvantage; on the contrary, it contributes slightly to the facility of the performance of iridectomy and capsulotomy, and, in simple extraction, the passage of the lens through the pupil.

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2. Gibbon's Diseases of the Eye, 1905.

ABSTRACT OF DISCUSSION

DR. H. DICKSON BRUNS, New Orleans: It gives me a great deal of pleasure that Dr. Hansell—it is impossible to say *mon chère maitre* in English—separated as we have been by 25 years of time and by 1200 miles of space, has arrived through his still greater experience at exactly what I have arrived at as to preliminary iridectomy. I believe I could add one or two advantages of this practice to those Dr. Hansell has already enumerated. After we have made a preliminary iridectomy we have learned something of the patient's morale; we know how he will conduct himself. In the second place, we have been able in a large degree to train the patient and the patient finds the ordeal is not such a terrible one as he anticipated. In the third place, the actual extraction is bloodless; there is no obscuration of the field of operation during the time we are actually extracting. And in the fourth place, and I regard that as of the most importance, the operation is completed with the least possible loss of time, especially if one opens the capsule with the point of the knife, as is my invariable habit. I think no operator of experience will doubt that the sooner the operation is over, other things being equal, and the bandages placed on the eye the better for the patient.

I disagree with Dr. Hansell on one point. It has not been my good fortune to find always that the iris has been well

anesthetized by the installation of cocain. I believe I have tried it in every possible way, but not exceeding a 5 per cent. solution for a cataract extraction. In a number of cases anesthesia is produced, but in another series of cases it is not. Fearing I had not carried out the directions of Dr. Hansell, before I left home I took occasion to try it, following minutely his directions. I did not obtain absolute anesthesia. This is important, because it is usually at the moment you grasp the iris and are about to cut it off that the patient moves and brings about a serious complication. Having used an injection of a solution made up of 10 minims of 1 to 1000 adrenalin, 10 minims 4 per cent. cocain and 20 minims normal salt solution in a large number of enucleations, and always in tenotomies and advancements, and being struck with the perfect anesthesia produced, I was led to try 5 minims of that fluid subconjunctivally at the place where we make the fixation, and I have found in this way, even in cases in which I am about to make an iridectomy for glaucoma, that absolute stony anesthesia can be produced. I have been trying it in a large number of cataract extractions and with success so far as the operator is concerned.

DR. G. C. SAVAGE, Nashville, Tenn.: An incision in extracting cataract is not so good when it fails to include the conjunctival flap. Keeping that flap out of the way while making the iridectomy is a very easy matter. Usually the aqueous that has escaped through the corneal incision is enough to moisten the flap so that if it is turned down on the cornea it will adhere; but if it does not do so, then by dropping a drop of sterile water on the conjunctiva and upper part of the cornea the flap can be turned over and it will adhere and be out of the way. This is a little thing but is important. I have made a beautiful conjunctival flap and in doing the iridectomy have clipped it away. Now that danger is absolutely removed. I would not fail to make a conjunctival flap in cataract extraction, and the bigger the flap the better I am pleased. I do another thing that I have never seen anyone else do, but probably a thousand of you are doing it, and that is that I may make just as little and just as short pressure on the eyeball as possible in extracting the lens. I transfix the lens from behind the moment it enters the wound and lift it out. Stopping all pressure makes unlikely any escape of vitreous. I have heard authors of papers say that the cases in which vitreous has escaped were among their best cases, but I have never seen a man who wanted the vitreous to escape. The flap should be replaced, but should this be neglected it will go back over the line of the incision and cover it just as beautifully and just as well as though it had been intentionally replaced. If the flap covers the line of the incision there will be better healing and less postoperative astigmatism.

DR. W. B. MARPLE, New York: I agree with Dr. Hansell in reference to the advantages of a preliminary iridectomy. There is no question but what the healing after an extraction where a preliminary iridectomy has been done is much more prompt and attended with much less irritation. The only possible objection is that it subjects the patient to two operations, and I have usually found that my patients dreaded the second operation much less than the first. One great advantage of the preliminary operation is that you find out much about your patient at a time when lack of self-control is attended with much less risk than if the whole operation were done at one sitting.

I operated two years ago on a man on whom, on account of certain complications, I decided to do a preliminary iridectomy. The patient was a man of large affairs and I anticipated that he would be an ideal patient. To my surprise he was quite the reverse; was uncontrollable and squeezed so hard that I am sure if I had had a section large enough to extract the lens he would have emptied his globe. As it was I did the iridectomy without any accident. After his recovery from the preliminary operation I took him in hand and trained him not to squeeze with the speculum in his eye, and subsequently did a successful extraction, which I am sure I would not have done had I attempted to do the iridectomy and extraction at one sitting. Among the patients on Blackwell's Island who can not be depended on my invariable rule is to do the preliminary operation first. I can not agree with the statement that iridectomy can be made absolutely painless; at least that has not been my experience. It is for this reason that among this class of patients I do the preliminary operation. If there is any pain then it will be at a time when my section is small and squeezing can do no harm. I am sure if I had a cataract I would want a preliminary iridectomy done. Like Dr. Hansell, my custom is to decide the proper time of operation by the degree of visual impairment.

Major Elliot of India, in the last volume of the Transactions of the Ophthalmologic Society of the United Kingdom, describes his method of opening the capsule before he makes his section. Although I have never done this, the reasons he gives for so doing seem good ones and I shall try it. I think that is a distinct advantage to instill adrenalin before commencing with the cocain, as suggested by Major Herbert.

DR. LUCIEN HOWE, Buffalo: To obviate the difficulty in keeping the eye still, I have had a pair of very small forceps constructed on a principle apparently that we have not so far employed. These do not fix the conjunctiva; but they are intended to grasp the external and internal rectus muscle tendons. After that is done we can depress the forceps out of the field of operation.

Another difficulty is that after the lens reaches a certain position it tends to catch there. When this occurs the lens can be lifted out by a pair of fine iris forceps having the blades bent in such an arc that when they close they sink into the lens, and enable it to be easily withdrawn. In some cases—but not always—they help.

DR. MARK D. STEVENSON, Akron, Ohio: One hour before operation my patients, especially if nervous, are given an appropriate dose of one of the bromide salts, which serves to quiet them. If there is no contraindication, a hypodermic injection of morphin and atropin is given 15 minutes before operation further to quiet the patient, reduce pain and relieve after-soreness. Thorough anesthesia is necessary, and in addition to placing a few drops of cocain solution in the eye, I inject a few drops of 0.5 per cent. cocain and 1 to 5000 adrenalin chlorid under the conjunctiva immediately over the cornea. I have never had the cornea fall in from the use of this injection.

I feel much safer with a conjunctival flap which quickly fixes the corneal section. It is more easily made after the formation of a bleb by the hypodermic use of cocain. In total enucleation of the lens, lensectomy—the so-called Indian operation—it should be very small and only at the summit. The remaining capsular tags form one of the chief objections to the old operation, and one of the most important arguments for removal of the lens in its capsule. If capsulotomy is to be done, it should be done definitely with a sharp cystotome, only two cuts being necessary, more making tags.

DR. G. ORAM RING, Philadelphia: In the ultimate analysis after all it is our duty to give the patient the benefit of our experience as to what produces the finest results. Those of you who know me well know I usually advise a preliminary iridectomy, and a result after a good many years of experience that will give me less than 1 per cent. of failures, is sufficiently good to tie to. I approve almost *in toto* of what Dr. Hansell has said. It seems to me it is a splendid conservative note to give to the young men after a long experience. I am inclined to question the advisability of doing the operation with electric light. I feel that the flash of the electric light on the sensitive retina might produce straining and loss of vitreous. When I can get good natural daylight I greatly prefer it. Sometimes under pressure one must use electricity. As to the strength of the cocain, with a 4 per cent. solution I, like a number of others, failed to get complete anesthesia, and I now habitually use an 8 per cent. solution with much more satisfactory results. It is now my almost invariable habit to remove the speculum immediately after the initial incision and I believe this procedure helps me to avoid straining on the part of the patient, and therefore largely eliminates loss of vitreous.

DR. O. TYDINGS, Chicago: There seems to me to be three extrinsic sources of trouble in every cataract extraction. One is now practically eliminated in every well-regulated operating room. I refer to infection. Another is the danger of loss of vitreous by pressure of the lids on the globe. This can be avoided by the use of the Fisher's lid elevator, an instru-

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ment which I have used for some years without the loss of vitreous in a single case. It eliminates the possibility of the loss of vitreous or damage to the globe by lid compression. The third source of trouble is in advising the patient to look downward, which is next to lid compression in danger to vitreous. Instruct him to look straight ahead and he will do so. By observing these rules the three extrinsic sources of danger in cataract extractions can be avoided. I can not too strongly emphasize this, because when danger is imminent it is too late to remove a speculum from an unruly patient; uless you have someone holding the speculum who is trained in that kind of work; while with the lid elevator it is a physical impossibility for any patient to do himself an injury.

DR. A. R. BAKER, Cleveland: In early years I not infrequently had cases of delirium following cataract extraction. By placing the patients in the hospital the day before the operation and letting them sleep in the bed they are to occupy and become acquainted with their surroundings, nurses and the house physicians, I have found that delirium is practically eliminated. I became convinced years ago that it was unnecessary to use a speculum and for six or eight years I have been making my extractions without one. I grasp the tendon of the superior rectus muscle with my fixation forceps and it is surprising how easy it is to control the eye. It keeps the lid out of the way and the incision can be made much more accurately and better than by any other method. If one wants to make a conjunctival flap it is the easiest thing in the world, while before it was not. In doing away with the speculum, one nearly always avoids the escape of vitreous. In other respects I manage my cases as recommended by Dr. Hansell. I like the preliminary iridectomy as a matter of choice. In any case in which I have doubts about the behavior or physical or mental condition of the patient I insist on it.

DR. A. E. DAVIS, New York: Insane patients are extremely nervous, but I have operated on a number without general anesthesia. The conjunctival flap gave me much better results than any other plan because in twelve hours the wound would be closed. Some patients would pull off the dressings. I do not agree with Dr. Savage, however, in regard to handling that flap so easily. If you have a rather large flap and turn it down over the cornea you can not see the iris at all. However, that does not disturb me because I rarely perform an iridectomy. In these difficult cases I find the flap method decidedly the best and I have done nothing else, and in an experience of twenty-five cases I have lost only one. The patient promised to be very good, but became violent on the table and destroyed the eye, after the operation was performed, and before the dressing could be applied.

CLINICAL DIAGNOSIS OF THE SYPHILOGENOUS DISEASES OF THE CENTRAL NERVOUS SYSTEM *

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I beg, first of all, to express my acknowledgment of the great honor that has been shown to me in inviting me to speak before a circle of medical men and scientific workers in a country so renowned for its rapid progress in every branch of culture.

Neurology, whose representatives are here assembled, owes much to America, which has largely advanced our knowledge of this department of science on many highly important points.

At the annual meeting of the German Society of Nerve Specialists, held last October in Heidelberg, I summed up our position with reference to the light thrown by recent research on the clinical diagnosis of the syphilogenous diseases of the central nervous system. To-day I beg to submit to your consideration the question whether and to what extent our views on this subject have undergone change since then.

Hamburg presents copious material for the study of syphilogenous nervous diseases. Within the last six months I had forty-seven cases of tabes dorsalis under observation for the four reactions; that is:

1. Pleocytosis.
2. Increase of globulin (Phase I).

3 and 4. Reaction of deviation of complement in the blood serum and spinal fluid after Wassermann.

How frequently cases of tabes dorsalis imperfecta occur is shown by the fact that out of these forty-seven cases nineteen were imperfecta or rudimentary tabes. By this I mean combinations of single symptoms which occur already in incipient tabes; that is, pupil anomalies, absence of tendon reflexes, gastric crises, etc.; the cases showed no progressive tendency and were of many years' standing.

In these forty-seven cases of tabes dorsalis a distinct lymphocytosis was missing only seven times. Four of these 7 cases were cases of tabes imperfecta, 2 were pronounced tabes and 1 was an incomplete case grafted on hereditary basis. The father had died of general paralysis on a syphilitic basis, and the patient himself showed the hereditary form of keratitis interstitialis.

This tabes data show, in conformity with my former 101 cases and with cases taken from literature by myself on former occasions, that pleocytosis is one of the most regular signs of tabes. It confirms further that pleocytosis occurs just as regularly in the "imperfect cases" as in the advanced cases of tabes; further, that it may be missing in progressed just as in imperfect cases.

The reaction Phase I has been just the same in these data during the last six months. It also was missing only seven times and in the same seven cases in which pleocytosis was absent; namely, in 2 advanced, in 4 imperfect and in the hereditary case. In conformity with my former experiences up to October, 1908, the material examined, it seems to me, shows that reaction Phase I is equivalent to the pleocytosis reaction. This reaction is so absolutely simple that I can warmly recommend it to this circle of competent experts.

During the last six months I examined seventeen cases of general paralysis for pleocytosis and Phase I. Only in one single case did I not find both reactions. This was a case of juvenile hereditary paralysis, with hereditary double lateral chorioiditis disseminata. Plaut also, as well as Sachs, and Noguchi in New York, demonstrated this negative result—each in a case of paralysis. We may say that both reactions exist in paralysis with hardly any exceptions; in this disease, too, the two reactions are equivalent. This is equally true whether the cases are advanced or imperfect—that is, rudimentary—cases. My new experiences are absolutely in line with those of former days. With regard to the many doubtful cases of tabes and paralysis there exists rather a difference in the numerical quantity of cases that come within the practice of neurologists. Here I need hardly say what I mean by this. On the other hand, we have cases in which trifling and uncharacteristic disturbances of the intellect are combined with anomalies in connection with the pupils or with reflex anomalies, cases showing light apoplectiform attacks with anomalies of the pupil, cases of interior ophthalmoplegia with positive history of syphilis; on the other hand, cases with subjective symptoms of spinal neurasthenia with one or two other not fully developed spinal symptoms, such as imperfect pupil reaction, diminution of the tendon reflexes, difficulty in mic-

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

turition, etc. Of these cases, I have seen 10 since October, 1908; in 5 pleocytosis was missing, while Phase I was missing three times and was doubtful once.

I can only repeat what I have said once before, that these cases require further observation, because they must establish the value of the two methods. I have already placed about seventy of these doubtful cases under my further observation and shall not fail in due time to give account of them either personally or through my pupils.

Now follows cerebral and cerebrospinal syphilis, the pure form of which is apparently rare—rarer than has been hitherto assumed. Since October, 1908, I have been able to examine only eighteen cases. Among these eighteen cases, both reactions, pleocytosis and Phase I, were missing only three times, both in the same cases. These statements also confirm my former ones and those in literature.

How do my latest experiences in reference to the occurrence of pleocytosis and Phase I affect those diseases which practically offer the greatest difficulties in differential diagnosis from the diagnosis of syphilogenous diseases of the central nervous system? I am thinking of multiple sclerosis, idiopathic epilepsy, neurasthenia with previous syphilis, pseudotabes alcoholica, tumor cerebri! In cases of multiple sclerosis evidence was again furnished in ten new cases that pleocytosis does occur, though seldom. Formerly I had found it in 23 per cent. of the cases and I had collected 24 per cent. from literature on the subject. I now found marked pleocytosis once and weak pleocytosis twice; that is, together 30 per cent. Formerly I found Phase I in 45 per cent.; now I found it twice among ten cases; that is, in 20 per cent. In multiple sclerosis the occurrence of the two reactions was simultaneous in two cases, whilst in the third case pleocytosis without Phase I was found; here it is confirmed that the two reactions are not the determining factor in the differential diagnosis between multiple sclerosis and cerebrospinal syphilis; for most frequently pleocytosis is marked in cerebrospinal syphilis and is weak in multiple sclerosis; the reverse is not seldom the case.

Idiopathic epilepsy I have examined thirty-one times for both reactions since October, 1908. Pleocytosis I found only once; Phase I, three times, quite weak. I can say, in summing up my former and my recent experiences, that, in cases of idiopathic epilepsy, both reactions prove a rare exception to the rule and that they are missing in the majority.

Cerebral neurasthenia without syphilis I have examined three times and syphilis also three times; only in one case did I find both reactions positive, and this case was rather suggestive of incipient cerebral syphilis. It is again shown that both reactions are of great value for the differential diagnosis between cerebral and spinal neurasthenia, on the one hand, and dementia paralytica and tabes dorsalis, on the other.

A conclusive confirmation of my former statements is afforded by ten further cases of pseudotabes alcoholica. Two of these cases gave a history of syphilis. In all ten cases both pleocytosis and Phase I were absent, which was in marked opposition to the otherwise absolutely positive results in tabes and paralysis.

Now let us take the cases of tumor cerebri which require differential diagnoses. During the last six months I have examined no less than sixteen of these cases; eleven of these were submitted to postmortem examination; the diagnosis was, therefore, conclusive. Among these eleven cases, pleocytosis was positive three times and Phase I four times. In three cases both reactions were positive; in one case only Phase I was positive. In the five cases in which there was no necropsy, lymphocytosis was invariably absent, while Phase I was twice positive. This, in the main, confirms the results of my former research, namely, that pleocytosis and Phase I occur in the small minority of cases of tumor cerebri.

Cases of "pupil-fixation" presenting partly objective or subjective symptoms, but not such as to justify suspicion of tabes or paralysis, are very interesting, as they do not necessarily imply syphilis. As formerly, I also found with four new patients that in cases of unconfirmed syphilis (three cases) the reactions were absent and in the case of syphilis (one case) they occurred.

I shall not touch on other cerebrospinal diseases in which the differential diagnosis between syphilitic and metasyphilitic nerve diseases do not come into question.

It has often been confirmed and may be accepted as proved that pleocytosis and Phase I either do not occur at all in such cases or only in rare instances, and when they do occur, only to a very small degree. Speaking from two of my own cases, I make an exception to this statement as regards idiopathic hydrocephalus. I will also point to one other disease for the diagnosis of which Phase I reaction would prove important, should my experiences, based on three cases, be confirmed by further observations—that is, compressing extramedullary tumors show marked Phase I reaction without lymphocytosis.

On the subject of the value of the complement-fixation reaction which has been applied by Wassermann, Neisser, Bruck and Stern for diagnostic purposes in syphilis, much has been written during the last two years. It may be accepted that this reaction is not specific for syphilis; it is not specific in the sense in which it was held to be by the first classic authors.

This opinion has also been expressed by workers on this subject in the United States—Butler, Fleischmann, Mefford, Lapowski, Fisher, Pedersen, Sachs and Noguchi, among others.

I will not neglect to mention here that the Hamburg scarlet-fever findings, after first lacking confirmation, were later on confirmed in other quarters—above all by Neisser's collaborator, Bruck, and were recently again recognized in Neisser's laboratory by Pürckhauer.

On the one hand, the syphilitic antigen may be replaced by non-syphilitic organ extracts and certain chemical substances, and, on the other hand, the inhibition (*Hemmung*) of the hemolysis which results from "fixation" of the complement may also take place in the case of diseases which are not syphilogenous, but are either certainly or presumably traceable to the presence of protozoa or bacilli.

It is admitted to be reliable in the case of leprosy and malaria; as regards scarlet fever the same is accepted by many as a fact. Muck and Eichelberg, of Hamburg, being the pioneers.

But the explanations offered on the subject differ with different authors (Bruck and Cohn, Klopstock, Seligmann and others).

In one case in my own ward the fact that an attack of scarlet fever had been passed through was first discovered by means of the Wassermann blood reaction, which was verified by further inquiry. I wish especially to point out that in this case all controls were exacted. A report of the case has been published by Holzmann.[1] The same precautionary measures were observed in the remaining

1. Holzmann: München. med. Wchnschr., 1909, No. 14.

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scarlet-fever cases, which were accepted as positive by Muck and Eichelberg after the Heidelberg discussion, so that the objections advanced by Plaut in his recently published excellent and exhaustive book on the significance of Wassermann's reactions in the department of psychiatry do not apply to these. Since Bruck, the collaborator of Wassermann and Neisser himself has accepted it, the controversy on the subject of the occurrence of the Neisser-Wassermann reaction in scarlet fever may be regarded as closed, in spite of the fact that Wassermann and G. Meier, as also Galewski and Schild, recently again stated that, except in the case of leprosy, the reaction takes place only with syphilis, and in spite of the fact that Wassermann himself upholds the specificity of the reaction.

Control experiments, which were conducted in Hamburg and Breslau, that is, in the serologic laboratory of the Eppendorf Hospital and in the laboratory of the Dermatologic Clinic in Breslau, resulted as follows: Of scarlet-fever serums, three in Hamburg and three in Breslau reacted positively. The same result was obtained twice out of six malaria serums in Hamburg, and the same in Breslau. The trustworthiness of the Hamburg experiment was also evidenced by the fact that all of the same class of serums, belonging to syphilitic subjects, whether examined in Hamburg or in Breslau, reacted in an equal manner. With this, the statement of Wassermann, made in Heidelberg in connection with Muck and Eichelberg's statements on their positive findings in scarlet fever, namely, that these findings could be accounted for only by faulty technic, may be considered as sufficiently contradicted to satisfy the objective critic.

Holle, so long the collaborator of Wassermann, has declared as follows: The deviation of complement reaction is not specific to syphilis; it is, however, characteristic of it. Hecht, of Prague, has stated the same, and I can only associate myself with these, as my later remarks will show. I say, with Lapowsky: The reaction is not specific in the bacteriologic sense, but is clinically characteristic of syphilis.

A large number of rules must be observed if faulty results are to be avoided. These rules have gradually arisen as the natural outcome of a long series of laborious experiments, as they naturally must with any new method. The absolute necessity for control experiments of more exacting technic for the verifying of early results, as suggested by ripened experience, is obvious to every one who engages in work of this difficult nature.

I will not enlarge on the necessary precautionary experimental measures, as this would lead too far to-day, and because Fleischmann and Butler[2] have described them minutely in THE JOURNAL of the American Medical Association. I will only state here that the most reliable authorities have found no certain difference between the use of watery and alcoholic extracts.

1. The extract and the hemolytic system must also be tested and estimated with several definite and suspected syphilitic serums.

2. For the purpose of controlling the hemolytic test, 0.4 c.c. of the serum to be examined must be used instead of the 0.2 c.c. which is required to produce reaction, in order to be quite sure that the serum in itself does not act antagonistically.

3. As antigen we usually used alcoholic extract derived from the liver of a syphilitic fetus. We dissolved it quickly, not in gradations, as Sachs in Frankfurt does.

4. The blood which is to be examined must be taken in the morning, as experience has taught us that blood serum may become cloudy and milky after a plentiful meal and so as to give too positive results.

5. In practice, reaction with active serum is impracticable, as it too frequently produces a positive reaction. The serum to be examined must, therefore, be rendered inactive; that is, warmed for half an hour at 58 R. (72.5 C.) before using.

6. According to several control researches of ours, serum and liquor remained in good condition about four or five days either at room temperature or on ice, provided they were not shaken too much. Even sending the fluid which was to be examined by rail from Hamburg to Breslau and back or to other remote places did not in every case render the serum useless for examination purposes, while after strong shaking it always gave positive reactions. After four or five days the results become untrustworthy, as in this case, just as after strong shaking, both serum and liquor may themselves act antagonistically. Sheep's blood, amboceptor (sheep blood corpuscles injected into rabbits) and extract (antigen) keep for a considerable time on ice, the amboceptor keeping longer than the extract; but before use they must be always examined.

7. The sheep's red corpuscles must be fresh and thoroughly washed; that is, they must be centrifugalized several times with salt solution.

8. It must be further controlled whether the extract and the hemolytic system are antagonistic as such, and in exercising this control both the exact quantity and double the quantity required for a reaction must be used.

In face of the experimental researches published before autumn, 1908, as well as since then by F. Lesser, Ledermann, Hecht, Behring, Bruck and Cohen, Bauer and G. Meier, Galewski, Rostoski, Blaschko and Kolle, and in face of the results obtained by my newer research, I consider myself to be in a position to state that the reaction is now sufficiently matured for medical practice, in spite of the fact that this is denied by Seligmann, Halberstätter and Fisher (Dresden). The technic is as yet so complicated and is so surrounded by sources of error that it can be undertaken only in a laboratory and by persons who are experts.

I should like to take you again over the material that I have examined in Eppendorf since October, 1908.

TABES DORSALIS

I have hitherto found that the complement deviation reaction took place in the blood in 90 per cent. of the cases and in the spinal fluid in about 50 per cent. On this point I found myself in agreement with early observers. I wish to amend this statement on one point: I missed the Wassermann reaction in 4 of 26 complete cases of tabes; that is, it was missing in 16 per cent.; and in 21 cases of tabes imperfecta the reaction was missing 9 times; that is, in 43 per cent.

My material of the last six months proves that the percentage of positive Wassermann reactions is not always as high as appears according to other statistics, and it also proves that the Wassermann reaction is more often absent in the tabes imperfecta cases than in the complete cases. At the same time the Wassermann reaction of the blood serum was missing just in two long-standing complete cases. This could be accounted for by a previous energetic specific treatment.

Very noteworthy is a case presenting a history of "chill" tabes without syphilis which had developed after

2. Fleischmann, Paul, and Butler, William J.: Serum Diagnosis of Syphilis, THE JOURNAL A. M. A., Sept. 14, 1907, xlix, 934.

a fall into cold water. This case also gave the Wassermann reaction in the blood, as well as pleocytosis and Phase I, while the spinal fluid reacted negatively.

At all events, according to my experience, pleocytosis and Phase I occur in tabes dorsalis more frequently than the blood reaction of Wassermann, and the harmony displayed by these reactions was not so marked as I was led to conclude in October, 1908.

One quite new result has, however, been demonstrated. In the forty-seven recently examined cases I found the Wassermann reaction positive in the spinal fluid in only two instances, and one of these two cases, a case of imperfect tabes which was stationary for ten years, was complicated with severe morphinism. This is extremely striking. As I mentioned before, I formerly found deviation of complement in the spinal fluid in about 50 per cent. of the cases.[3]

There is little literature on the subject; in almost all publications either the blood serum reaction alone is discussed, or it remains doubtful whether blood serum or spinal fluid is meant. It is urgently desirable that in further work on this subject serum and spinal fluid should be strictly differentiated, for in the autumn of 1908 it was already manifest that the reactions obtainable from these two fluids were by no means the same.

Only Rostoski, Schultz and latterly Plaut declare that the spinal fluid often gave the Wassermann reaction in tabes; it must, however, be pointed out that Plaut did not see clinically the cases of tabes which he examined serologically, or only to a very limited extent, and that in the cases of Schütze several cases of tabes were complicated with paralysis; that in one case there was also a combination with chronic morphinism, and that in several other cases a combination with paralysis was not to be excluded.

Still, Rostoski, speaking from his own experiences, declares that in tabes, paralysis and cerebrospinal syphilis, a positive Wassermann reaction is still forthcoming in the spinal fluid in cases in which the blood reaction may be obscure, or even negative. This assertion remains completely unsupported; agreement already existed on the point that the fluid gave the Wassermann reaction much more seldom than the blood serum. Plaut declares in his new book that he found the Wassermann reaction in the spinal fluid seven times in eleven cases; stress must, however, be laid on the fact that Plaut did not examine these cases himself.

I claim for my present experiences that they are conclusive, for both our research-technic and experiences have essentially matured and widened. I also wish the fact to be taken into account that my results in regard to the other organic nervous diseases are in accordance with those of other authors, as I will demonstrate later on. I would here like most earnestly to point out the necessity for further research. I feel firmly convinced that he who employs methods absolutely free from objections will attain results identical with mine. It was known from the first that the complement deviation reaction occurred with considerably less frequency in the spinal fluid than in the blood serum, but that the occurrence of the reaction in the fluid is such a rare exception that its absence may be regarded as characteristic of tabes dorsalis, is an entirely new conception and is attended with considerable influence in medical practice.

We then made control experiments with watery extract, because we usually employed alcoholic extract. In some few instances it was found that the utilization of watery extract of syphilitic liver gave so faint a trace of a positive reaction in blood serum, whereas the *alcoholic* extract had given a negative Wassermann reaction, that it could not be registered as certainly positive. At all events this much is certain: that in tabes the Wassermann reaction occurs very seldom in the spinal fluid, and when it does occur is very weak, indeed. The case bears an entirely different aspect from that of dementia paralytica. Formerly I found the Wassermann reaction in the blood and in the spinal fluid in 90 per cent. of the cases. During the last six months I have found in twenty cases that the blood reacted positively in every single case, and the spinal fluid I found only once negative. These results are in absolute accordance with Plaut's experiences. It is desirable that further research should be made in regard to this discrepancy between the behavior of the spinal fluid in the case of paralysis, on the one hand, and in the case of tabes, on the other. That my findings will meet verification I feel convinced from the perfect constancy of my results.

It appears to be the future mission of the Wassermann reaction as applied to the spinal fluid to act as an important diagnostic factor in arriving at a differential diagnosis between paralysis and tabes, while the remaining three reactions are common to both diseases.

In the case, however, of hereditary paralysis—that is, of dementia paralytica on a hereditary syphilitic soil—the Wassermann reaction appears to fail at times. At all events, I failed to obtain it in three out of the four cases which I have encountered since I first began to examine for the Wassermann reaction. In Heidelberg I referred to the fact that Stertz and Plaut had confirmed this.

To the two cases of hereditary syphilis of the central nervous system which likewise only gave negative spinal fluid reaction after Wassermann, I can add a further case. This was that of a child with paralysis accompanied by hereditary syphilitic interstitial keratitis. The father had died of paralysis on a syphilitic soil.

It is true that the objection may be advanced that these cases are not cases of paralysis at all, but of congenital cerebral syphilis. This can be decided only by necropsy, and then only with careful microscopic examination.

Plaut says in his book that the absence of the Wassermann reaction in the blod almost absolutely excludes the diagnosis of paralysis, and its absence in the spinal fluid does the same. Speaking from my own experience, I can only reaffirm this statement.

A special case under my own observation proved to me the importance of the simultaneous appearance of all four reactions for the differential diagnosis of paralysis. The case is that of an actor, aged 66, who had suffered from syphilis thirty years previously.

He presented the typical clinical picture of senile feeble-mindedness and did not display a single somatic symptom of paralysis, but all four reactions were exquisitely positive. The necropsy demonstrated chronic leptomeningitis, granulation of the ependyma of the lateral ventricles; in other words, suspicious evidences of paralysis. Dr. Ranke, privat docent of Nissl's clinic of psychiatry in Heidelberg, was kind enough to examine the brain microscopically. The characteristic changes of paralysis were very marked and very diffuse. Dr.

3. I again went over the cases which were at the time registered by me as positive. These were nine cases. With the most searching and far from partial criticism, only one case remains of which it can be said that no grounds for the diagnosis of an incipient paralysis exist. A really classic complete case of paralysis was altogether wanting among the nine cases. In 4 instances the failure of the pupil-reflex was unilateral; 4 cases showed tendon-reflexes of the lower extremities—in 3 cases these were even exaggerated; one case was complicated with chronic anterior poliomyelitis; in 2 instances there was absence of tendon-reflexes in the lower extremities with a syphilitic history.

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Ranke laid special stress on the fact that there were no signs of cerebral syphilis, but that it was a clear case of paralysis.

On the other hand, two cases showed me the value of the failure of the Wassermann reaction to appear in the blood and the spinal fluid as giving grounds for refusing to accept the diagnosis of paralysis. In the first case a man was brought into my ward, suffering from disordered intellect and slight delirium with signs of megalomania. The pupils were unequal and did not react to light, and the tendon reflexes were exaggerated; furthermore, he gave a history of syphilis and displayed specific scarring of the skin. Of the four reactions, only lymphocytosis and Phase I were positive, while blood and spinal fluid gave negative Wassermann reactions. An exact history was wanting. The patient lay about a week in this state. The autopsy demonstrated meningitis tuberculosa. In the second case the history of syphilis was doubtful. The patient presented a case of simple dementia with delusions of grandeur. His tendon reflexes were exaggerated, his pupils did not react to light and convergence tests, there was weak innervation of the right facialis and indistinct speech; in this case all four reactions were negative. Necropsy demonstrated a large tumor in the left frontal lobe.

One case which presented appearances strongly suspicious of incipient paralysis, yet giving no spinal fluid reaction after Wassermann, developed later on left interior ophthalmoplegia, which tipped the scale in favor of a diagnosis of cerebral syphilis. Plaut also reports a case which, from the clinical appearance, he took to be alcoholic dementia, yet it gave positive Wassermann reactions both in the blood and in the spinal fluid; the case then developed into an unmistakable paralysis.

In the same way the two reactions of two cases which were held to be cases of maniacal depression pointed to paralysis; and another one with syphilitic history and insufficient pupil reaction without Wassermann reaction in the blood and in the spinal fluid, pointed to simple mania in a syphilitic person.

In sixteen cases which presented suspicious symptoms of tabes and paralysis, the Wassermann reaction was positive ten times in the blood and three times in the spinal fluid. These cases I have placed together with over seventy other cases for further observation. The course of these cases will retrospectively furnish us with valuable experience as regards the diagnostic value of lymphocytosis and Phase I.

Among my collected data of tabes I have only seen three cases in which all four reactions were negative. All three cases presented the picture of tabes imperfecta, and the diagnosis was, moreover, open to doubt; so that these three cases were not calculated to disprove with certainty the statement that the absence of all four reactions practically never occurs in tabes dorsalis.

In imperfect cases of paralysis I never obtained negative results in all four reactions. What I twice observed in such cases was the absence of the Wassermann reaction in the spinal fluid.

I sum up, therefore, as follows: The Wassermann reaction in the blood and in the spinal fluid is as delicate a test for acquired paralysis as pleocytosis and Phase I; and equally characteristic of tabes is the absence of the complement deviation in the spinal fluid with positive pleocytosis, Phase I and Wassermann reaction in the blood serum.

I have also examined four children whose parents presented a past history of syphilis. These children merely exhibited the general constitutional signs of a high degree of nervousness without displaying any objective somatic abnormalities in the nervous system. In one case the mother suffered from an aortic aneurism; in another case the father had died of paralysis. In one case the mother had tabes imperfecta, and in the fourth case both parents had tabes imperfecta. Only in one case, the second of this series, the child's blood showed a positive Wassermann reaction. No tests were made with the other three reactions.

With the Wassermann reaction in tabes and paralysis I had the same experience as with the pleocytosis and Phase I: the reaction was the same in complete cases as in incipient cases, the same in rapidly progressing as in slowly progressing and stationary cases. In this connection, the reactions are useless for purposes of prognosis—herein I quite agree with Plaut.

Experiments for the purpose of comparing the intensity of the Wassermann reaction in the blood and in the spinal fluid have demonstrated that no constant relation exists on this point. I believe that further experiments will show the same negative result.

Plaut gives expression in his book to the hope that a want of harmony between the Wassermann reaction in the blood and in the spinal fluid may perhaps be utilized for diagnostic purposes. I myself can not share this hope, as my experience hitherto gives me no grounds for doing so.

For paralysis I have never seen a change of the positive Wassermann reaction in the blood and in the spinal fluid following on antisyphilitic treatment. A case which showed this reversal, which was first held by me to be paralysis, proved afterward to be that of a syphilitic suffering from alcoholic paralysis (Korsakow's psychosis with chronic polyneuritis).

Now I must touch on cerebrospinal syphilis. Among my ten cases observed since October, 1908, the spinal fluid reacted only once positively, and in this case the reaction changed to negative after an inunction treatment. The blood serum reacted negatively only twice. These two cases, however, were not quite homologous. I must not neglect to emphasize the fact that in two of the above-mentioned sixteen cases, autopsy in one case and trephining in the other, confirmed the diagnosis of gummatous cerebral syphilis.

I must emphasize still more strongly than I have done before, or than Stertz and Wassermann and Plaut[4] did in 1908, that the typical result of the four reactions in the different forms of cerebrospinal syphilis (meningitis, arteritis and gumma) is this: that along with pleocytosis and Phase I the Wassermann reaction is positive in the blood and negative in the spinal fluid. Hence it follows that the same result is shown in cerebrospinal syphilis as in tabes, which, owing to the negative result of the Wassermann reaction in the spinal fluid, differs from the result obtained in paralysis. The opinion to which I inclined formerly was that the negative result of the Wassermann reaction in the spinal fluid would, in many cases, guide us in the differential diagnosis between tabes and spinal or cerebrospinal syphilis. This hope, however, has not been confirmed by later experiences. In this I am in opposition to Plaut, who still upholds the differential diagnostic value of the spinal fluid reaction in tabes, on the one hand,

4. Plaut now states that the Wassermann reaction in the spinal fluid is as rare in syphilis of the nervous system as it is frequent in paralysis. He obtained positive Wassermann reactions 19 times in the blood of 20 cases, and 3 times in the spinal fluid. We must therefore conclude that in syphilis of the nervous system in rare cases the blood can react negatively and the spinal fluid positively.

and in cerebrospinal syphilis, on the other. Further researches must elucidate this point; but it must be insisted on that in the examination of the cases selected both the neurologists and the serologists are trustworthy.

I must briefly mention that all six examined cases of pseudotabes alcoholica without a history of syphilis gave a negative Wassermann reaction in the blood and spinal fluid. I am bound, therefore, to acknowledge that in Wassermann's reaction we have the same valuable additional factor for the differential diagnosis in the case of tabes as we have in pleocytosis and Phase I.

In the same way, in all nine cases of cerebral arteriosclerosis, whether associated with senility or presenility, the blood and spinal fluid reacted negatively.

I now come again to those three diseases which are of particular interest, not only because they offer special difficulties in the way of the differential diagnosis for cerebrospinal syphilis, but because they also differ *inter se*. These are: (1) multiple sclerosis, (2) idiopathic epilepsy, and (3) cerebral tumor.

As I had formerly with all these diseases obtained no results which afforded striking evidence in favor of the differential diagnostic value of the Wassermann method, I felt myself bound to institute further researches in this connection. These have been productive of essentially satisfactory results for us medical practitioners. In ten cases of multiple sclerosis I obtained only one positive Wassermann reaction, and this only in the blood. As both pleocytosis and Phase I were also present in this case, the four reactions together presented the typical phenomena of spinal or cerebrospinal syphilis. This case confirms a former observation of my own which also presented the Wassermann reaction in the blood, whereas my newer observation did not confirm my former one as regards the occurrence of the Wassermann reaction in the spinal fluid.

Plaut also found in one case of multiple sclerosis that the blood serum reacted positively. Sachs found cerebral syphilis in the postmortem examination of two cases, which he had diagnosed as multiple sclerosis in spite of the fact that he had obtained a Wassermann reaction.

At all events, we now can state that in a case of doubtful differential diagnosis the occurrence of the Wassermann reaction in the blood as well as in the spinal fluid should nearly exclude the diagnosis of multiple sclerosis.

According to my further experiences, the case for the practical value of the Wassermann reaction is still more favorable in connection with idiopathic epilepsy. I examined thirty-two cases of idiopathic epilepsy free from any discoverable syphilis for the Wassermann reaction. The reaction was not once positive in the spinal fluid of these thirty-two patients. In the blood serum I found it positive five times. In the formerly examined nine cases I found that the spinal fluid never once reacted positively, but the blood reacted positively five times. But the material now presented for examination is most instructive. I will, therefore, shortly describe the five cases presenting positive blood serum reactions.

In the first case the father had been syphilitic prior to marriage and his blood still gave the Wassermann reaction.

The second patient in course of time developed a pronounced ataxia of the lower extremities with hypotanys; this became associated with double olfactory failure. These cerebral symptoms gave way to a course of inunction treatment. It may, therefore, be taken as certain that the diagnosis of cerebrospinal syphilis was the correct one, the more so as pleocytosis and Phase I were also present.

In the third case severe epilepsy had likewise developed in a hitherto perfectly healthy young man of 17. Bromid did no good, but *traitement mixte* effected a cure, and it was later on discovered that the father had a history strongly suggestive of syphilis.

In the fourth case, in which out of the four reactions only the Wassermann reaction in the spinal fluid was negative, in spite of the fact that there were no somatic symptoms, the suspicion that it was a case of developing organic syphilogenous disease could not be rejected, owing to the presence of severe headaches and owing to the fact that epilepsy had not set in until the thirty-eighth year of life.

Only the fifth case afforded nothing noteworthy.

These experiments have led me to hold the opinion that in cases of idiopathic epilepsy which are free from syphilis, the complement reaction in the blood is absent, while where the reverse is true this fact indicates the syphilogenous nature of the epileptic attacks, or indicates that the epileptic attacks are precursory symptoms of a developing cerebrospinal syphilis. I am in agreement with the statement of Plaut in his book on this point.

As regards the non-occurrence of the Wassermann reaction in the blood in cerebral tumor without a syphilitic history, I maintained a skeptical attitude six months ago toward the statements of Stertz and others, which was justified by our own experience in eight cases; I have made further researches on these lines. I hold it to be correct to confine statements to such cases of cerebral tumor, in which the postmortem examination has confirmed the diagnosis. Since October, 1908, I have had eleven postmortem cases of cerebral tumor placed at my disposal. In all eleven cases the reaction had been negative in the spinal fluid and was positive only once in the blood serum, and this case is especially instructive, because we had during life taken hers for a case of cerebral syphilis, as she exhibited a periosteal node on the forehead which had shown rapid retrogression after inunction treatment.

The following three cases are also very instructive:

CASE 1.—A woman of 40 had become blind twenty years before the time of observation as a result of gradual optic atrophy; the pupils did not contract to light, the tendon reflexes were absent and the history pointed suspiciously to syphilis. I felt firmly convinced that we were dealing with a case of stationary tabes; all four reactions were, however, negative. The autopsy revealed an anatomically benignant cerebral tumor in the hypophysis.

CASE 2.—The case of a middle-aged man showing a history pointing to syphilis was diagnosed as a possible case of paralysis because the patient was in a state of chronic bewilderment, had indistinct speech and his pupils did not react to light and convergence; there was no swelling of the optic disc. All four reactions were negative. The autopsy showed a large infiltrating tumor in the left cerebral hemisphere.

CASE 3.—A man of 30 suggested the diagnosis of tumor in the right lateral motor area of the cortex. There was no history of syphilis. In this case pleocytosis, Phase 1, and the Wassermann reaction in the blood-serum were positive. The trephining of the skull demonstrated, both macroscopically and microscopically, that the supposed tumor was a gumma.

The summary of my conclusions to-day is as follows: In the case of cerebral tumor without the complication of syphilis, the blood serum and spinal fluid react negatively as to the Wassermann reaction.

All the cases which I examined of neurasthenia without past history of syphilis were negative to all four

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reactions. My experiences during the last months only confirmed my former ones. Those cases showing a syphilitic history exhibited feeble pleocytosis; half of them gave positive Wassermann reaction in the blood, none of them in the spinal fluid, and none of them showed Phase I.

I should like to enumerate here several interesting and important single observations, as we have yet much to learn in this comparatively new field of research.

In cases of conjugal tabes I twice found that the blood reaction occurred positively in only one of the married couple, once in the man and once in the woman.

Twice I encountered a negative condition of pleocytosis and Phase I in a case of dementia paralytica, and a week later found both to be positive on examination. I twice experienced the same thing with the Wassermann reaction in the spinal fluid in cases of paralysis. Plaut mentions the same experience. From this we draw the conclusion that it will be expedient to repeat the puncture in cases in which the reaction is contrary to expectation—a proceeding which, however, would often be attended with difficulties.

In one case of very severe syphilis of the spinal cord, which gave the typical result—that is, pleocytosis and Phase I and blood reaction after the Wassermann—and which had cleared up perfectly from a clinical point of view, it was found, when the patient came, after a year's interval, to report herself, as perfectly healthy and normal that all four reactions were now negative. This case might be used to demonstrate an ideal case of cerebrospinal syphilis which had responded to treatment.

It would be well if, in the near future, research were done on a large scale with the object of deciding the relations existing between pleocytosis and Phase I and the Wassermann reaction in the spinal fluid. In the meantime we must accept as true that no reciprocal relations exist between them. It is true they occur simultaneously in dementia paralytica. Still, the cases of paralysis (which, it must be admitted, are very scanty) in which lymphocytosis and Phase I, or one of the two reactions, are missing, but above all the absence of the spinal fluid reaction in tabes and in cerebrospinal syphilis, prove that the occurrence of pleocytosis and Phase I does not necessitate the occurrence of the spinal fluid reaction, and *vice versa*.

It would be a further task to work out the family groups, the numbers of which will increase in the course of research directed to this point, in regard to the reactions. Plaut and I have made the beginning of this work.

Working with more copious material, it must be further decided whether the cases of syphilogenous nervous diseases on a hereditary syphilitic basis are different with regard to the four reactions from the cases of acquired syphilis. A series of observations conducted by Stertz, by Plaut and by myself allow this to appear possible. Above all, search must be made for the reason why the spinal fluid reacts so differently in tabes and in paralysis.

I believe that I have shown the practical use that neurology has so far made of these four reactions.

SUMMARY

I sum up once more as follows:

Paresis gives almost invariably all four positive reactions.

Tabes shows almost invariably pleocytosis, Phase I and Wassermann reaction only in the blood; the same is true of the different forms of cerebral and cerebrospinal syphilis.

In these enunciations is expressed the value of the four reactions as applied to the differential diagnoses between neurasthenia with and without a syphilitic history.

For the differential diagnosis between cerebrospinal syphilis and cerebral tumor without a syphilitic history, the Wassermann reaction is of extreme value—yes, even conclusive in that it is negative both in the blood and in the spinal fluid in the latter. Where the patient with cerebral tumor has a syphilitic history, the Wassermann reaction is valueless. Pleocytosis and Phase I play no decisive part in the differential diagnosis between cerebrospinal syphilis and cerebral tumor. The Wassermann reaction occurs in multiple sclerosis in the spinal fluid not at all and in the blood serum so very rarely that this fact does not come into consideration.

On the other hand, the appearance of pleocytosis and Phase I is not so rare in multiple sclerosis as to render this reaction of value in the differential diagnosis of syphilis.

The occurrence of the Wassermann reaction in the blood in presumable idiopathic epilepsy should give rise to grave doubts against the diagnosis and should render it extremely likely that the condition is a syphilogenous one (paralysis or cerebrospinal syphilis or epilepsy with syphilitic history). The same holds good for pleocytosis and Phase I.

In the case of pseudotabes alcoholica without a syphilitic history, the four reactions practically never occur. Their absence may, therefore, be safely regarded as conclusive in the case of tabes.

All remaining organic diseases of the brain and spinal cord I can consistently pass over, as none of these diseases enter into diagnostic conflict with the syphilogenous diseases of the nervous system.

At Heidelberg last October I stated that I could give only an abstract of my views, but that further research would either confirm or modify them.

Time has already proved me to be right in my conclusions; the greater part have been confirmed; many, including some very important points, have become modified.

I think, however, that I am to-day in a position to state that the essential points will not become obliterated and that we can now state what the four reactions are capable of doing and what they can not do.

Whoever has experience of the results obtainable from these four reactions will not now demand from them that they shall under all circumstances enlighten him on the following points:

Whether the dubious complex of symptoms presented by a patient with a syphilitic infection is derived from the presence of cerebrospinal syphilis or multple sclerosis, or whether, in the case of a patient with a syphilitic record, the dubious symptoms owe their presence to a specific cerebral syphilis or to a cerebral tumor. This is possible only when all four reactions are negative. In both instances, however, the ensemble of pleocytosis and Phase I and the positive Wassermann reaction in the blood would not solve the diagnostic problem.

As little would the experienced worker demand from the four reactions that they should inform him whether the case in question was tabes alone or a case of tabes in conjunction with spinal syphilis.

More is to be demanded from the differential diagnosis between paralysis and tabes, on the one hand, and

neurasthenia (either with or without a past history of syphilis), idiopathic epilepsy or the pseudotabic form of chronic alcoholism (either with or without a syphilitic history), on the other hand.

If at present our conclusions on the subject of the behavior of the four reactions in the course of clinically diagnosticable organic diseases of the brain and spinal cord are established, further research must be directed toward the examination of the doubtful cases; that is, it must follow them up until their diagnosis is conclusive or until the autopsy reveals the truth.

CASE 4.—Syphilis eight years ago; severe headaches during last six months without any discoverable cause; neuropathic picture; no somatic abnormalities. All four reactions negative. The balance inclines in favor of the diagnosis of functional headache of syphilis.

CASE 5.—A spastic complex of symptoms not pointing to multiple sclerosis in the case of an elderly man, in all four extremities; no evidence of syphilis. All four reactions negative. Here one would expect no signs that the spastic complex of symptoms was the expression of syphilis in the brain and spinal cord.

CASE 6.—An otherwise healthy subject with no syphilitic history, suffering from severe headaches, which do not respond to any form of treatment. The somatic nerve condition is negative. Pleocytosis and Phase I show negative results; the Wassermann reaction negative in the spinal fluid but positive in the blood. The case directs suspicion to syphilis on account of the headaches.

CASE 7.—Patient had syphilis ten years ago; seeks advice on account of depression and insomnia. The only objective symptom is miosis, and the pupils do not react to light. Lymphocytosis and Phase I are markedly positive, the Wassermann reaction negative in the blood and in the spinal fluid. What will this prove to be? Can we here exclude paralysis and tabes? Paralysis with a great degree of probability, but not tabes.

CASE 8.—Dementia. The patient had syphilis ten years ago. Symptoms suggest paralysis of basal nerves. Of the four reactions only Phase 1 is positive. Improvement of dementia and of the paralysis after specific treatment. Is this a specific or non-specific basal process of the brain?

Up to now I have placed over seventy cases under control. I believe that the patient recording of just such cases will help us in the diagnostic application of the four reactions, until the necessary experience has been gained, even though this may extend over many years.

Plaut, with his extensive experience, emphasizes the same in his book, which is written in an objective and sound critical spirit. He also says that the diagnostic value can be really established only after many years of careful work; he is, therefore, like myself, entirely free from an overhasty optimism.

In medical practice it has been shown that all four reactions have their value, but only in the sense that no single one can be taken as conclusive by itself. Used, however, in combination, and then only when all factors which have any bearing on the subject are taken into consideration, they are of value in individual cases.

In their combined application the four reactions represent an exceedingly valuable implement which we can not wish nowadays to miss, the less so as their application enables us to arrive at a diagnosis in an earlier stage than heretofore of just those syphilogenous diseases of the nervous system that are so significant in medical practice.

[THE DISCUSSION ON THIS PAPER WILL APPEAR LATER WITH THE OTHER ARTICLES IN THE SYMPOSIUM.]

BENIGN TUMORS OF THE TURBINATED BODIES CLINICALLY AND PATHOLOGICALLY CONSIDERED *

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Excluding nasal polypi, which are really edematous hypertrophies, partaking of the character of soft fibromata, benign tumors of the turbinated bodies are very rare. In speaking of true papillomata of the nasal cavities Wright says that he doubts if more than twenty cases thus differentiated from papillary hypertrophies can be found in rhinologic literature. "I have seen less than half that number, though a much larger number of specimens, referred to me with that clinical diagnosis, subsequently proved to be fibrous hyperplasia rather than epithelial hyperplasia." He also says:[1] "While it occasionally occurs in and about the nasopharynx, fibroma springing from the nasal structures is exceedingly rare. In 32,997 patients examined, only 2 fibromata of the nose appeared." In five years M. Schmidt, in the examination of 16,244 patients, found 4 fibromata of the nose, all in males; 14 papillomata (8 men, 6 women); 11 cysts (5 men, 6 women); 2 lymphomata (1 man, 1 woman), and 2 angiomata (1 man, 1 woman). In seven years Auerbach saw 3 nasal adenomata, 2 of which sprang from the anterior end of the middle turbinated body; all 3 tumors completely filled the nostrils and had to be removed piecemeal. Heyman describes 6 such cases under the name *"gutartiges Epitheliom"* and emphasizes their rarity. In a special practice of eight years I have seen clinically 3 benign tumors of the turbinated bodies; I have examined pathologically 3 more benign growths referred to me by other rhinologists. Of the 6 patients 4 were females and 2 males; their ages ranged from 12 to 60 years. Because of the infrequency of such growths I shall refer to them briefly:

CASE 1.—A woman, aged 60, consulted Dr. H. Harlan for nasal obstruction and persistent headache. Examination of the nose revealed a large irregular growth attached the entire length of the middle turbinated body. Under cocain anesthesia, the mass was removed *in toto*.

Tumor.—The actual dimensions of the tumor after remaining in alcohol for some time were as follows: Length 4.5 cm., width 3 cm., thickness 1 cm. Dr. Harlan referred the growth to me for microscopic examination. When small pieces were removed for hardening, the knife gave the impression of a fibroma. Sections stained with hematoxylin and eosin and examined with low power showed essentially an outer epithelial covering and an inner structure of fibrous tissue surrounding islands of glands. With the high power the epithelial covering was seen to consist of columnar ciliated cells; the fibrous tissue was thick and ran in different directions and at some points invested the glands so closely as to give the impression of a carcinoma. So numerous were the glands that it was difficult to decide whether they or the fibrous tissue predominated. The microscopic diagnosis was fibroadenoma of the middle turbinated body.

CASE 2.—A woman aged 50, had difficulty in breathing through the nose and severe asthmatic attacks. In the nasopharynx was a large, round, grayish tumor imparting a doughy sensation to the probe. The color and general appearance reminded one of a fibroma, but the age of the patient was against such diagnosis. The point of attachment could not be seen. In introducing the index finger into

* Read in the Section on Laryngology and Otology of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

1. American Text-Book of Diseases of the Eye, Ear and Throat.

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the nasopharynx to work the snare around the mass, there was a sudden rupture of the tumor with the escape of a dark, grumous fluid. The walls of the cyst were then removed as well as possible with cutting forceps. A few days later the attachment of the cyst was found to be the posterior end of the right, inferior turbinated body.

Tumor.—The pieces removed were hardened in alcohol. Sections were stained in hematoxylin and eosin; they were made up of connective tissue covered internally and externally with cylindrical epithelium.

CASE 3.—A girl, aged 12, was referred to me by Dr. Hiram Woods for nasal obstruction. Examination of the nasopharynx showed a tumor which seemed to fill the left posterior naris. In the nostril the growth sprang from the posterior, internal surface of the inferior turbinated body. After removal the specimen was misplaced and was not examined microscopically. It was probably a fibromyxoma. The attachment of the growth to the inferior turbinated body would seem to contradict Killian's claim that all such tumors have their origin in the antrum and grow out into the nostril.

CASE 4.—A club shaped tumor, attached by a small pedicle to the posterior end of the right, inferior turbinated body, was removed by Dr. J. F. Crouch and referred to me for microscopic examination. Sections were made by Dr. L. J. Goldbach. The outer covering was columnar epithelium; internally the tumor was made up of fibrous tissue and blood vessels of various sizes. The tumor was a pure fibroma.

CASE 5.—A tumor as large as a sparrow's egg, attached to the inferior turbinated body by a small pedicle, was removed by Dr. J. R. Winslow. Microscopically, the outer covering was columnar epithelium; the growth proper was made up of connective tissue, glands and venous sinuses of various shapes and sizes filled with blood. No bone was present. From the formation of the tumor it could only be classed as a supernumerary turbinated body.

CASE 6.—A girl, aged 17, had long been unable to breathe through the nose. Examination of the nasopharynx revealed adenoids and a long tumor springing from the posterior end of the left inferior turbinated body and extending to the border of the soft palate. The growth externally was covered with columnar epithelium while internally fibers running in different directions were seen. The diagnosis was fibroma.

Papillomata of the nasal structures are usually small and cause few or no symptoms. That at times they may simulate the stubbornness of such growths in the larynx is proved by three cases reported by Wright:

Case 1 was seen by Verneuil in 1886. A woman of 42 had papillomatous masses projecting from the nostril; the nasal arch was widened into the frog face. The growths were repeatedly cleaned out by intranasal procedures and as promptly recurred. An external incision opened up the nasal cavity; the mucous membrane was thoroughly curetted and much of the turbinated tissue removed. There were multiple recurrences and operations.

In Case 2 a woman of 45, five months after an injury, had growths projecting from the nostril. On examination sessile, papillary growths covered the upper and anterior surface of the right nasal chamber extending over the middle turbinated body. The tumors were removed with the curette many times. Histologically, the tissue did not differ from a typical papilloma except in the profusion of epithelial proliferation.

Case 3 was similar to Case 2.

Blood tumors of the turbinated bodies may become dangerous from frequent and severe hemorrhages. Juracz saw such a growth about the middle of the inferior turbinate which caused frequent hemorrhages. Shaffer operated on seven cases of *"teleangiektatischen Tumoren der Nasenschleimhaut,"* all of which sprang from the anterior end of the inferior turbinate and gave rise to severe hemorrhages. Hamm saw a patient, 17 years old, with a tumor the size of a cherry on the anterior end of the inferior turbinate which bled freely; histologically it was a lymphangioma. Baurowicz saw a similar growth in a patient 19 years old. A. Schmidt records a bluish-red tumor about the tize of a pea on the anterior end of the right inferior turbinate which proved to be a cavernous angioma.

When we consider the etiology of nasal tumors we have to admit that we are no farther advanced than when Cohnheim gave his theory to the world. Chronic inflammation has been blamed as an etiologic factor; we see this condition in the nose more frequently than in other parts of the body, but all varieties of tumors are comparatively rare. The nose is exposed to all manner of injuries so that trauma can scarcely be given a place in the etiology. A few years ago Williams advanced a modification of Cohnheim's theory which is original and plausible. He believes that certain cells are stored up in the body as reserve cells and are controlled by a definite force which is always active, provided the body is in good physical condition. If, however, the organ suffers from malnutrition from any cause the cells are no longer under control but grow, not reproducing their kind but forming neoplasms. He holds that all tumors are cellular in character, not inflammatory.

If the symptoms of benign growths in the nose are analyzed carefully it will be found that not infrequently they simulate certain phenomena seen in malignancy. Thus there may be complete obstruction, pain from pressure, hemorrhage and occasionally frog-face deformity in both classes of tumors. In some cases it is not possible to make the diagnosis from the clinical symptoms. A few months ago a patient was referred to me with a large growth in the left nostril. Another rhinologist had made the diagnosis of fibroma from the clinical symptoms; microscopic examination showed that the tumor was a small round-celled sarcoma. In this case the only clinical symptoms were nasal obstruction and the presence of a growth, both of which were found in Case 1 of my series.

In the diagnosis of nasal tumors the microscope is of such importance that I believe it can not be too strongly emphasized that all tissue removed from the nose should be examined microscopically. By so doing we will not only increase the statistics of benign tumors, but will occasionally be surprised to find that a growth clinically benign and harmless is really malignant. Wright, Douglass, Rosenheim, Winslow and others have added their testimony as to the value of the microscope. Rosenheim aptly says: "The use of the microscope as a means of diagnosis has been much neglected by those especially interested in the diseases of the nose and throat. Jonathan Wright has recently called attention to its value as a routine measure."

In conclusion, I wish to call attention briefly to the possibility of the transformation of benign into malignant growths. There is much to be said on both sides of the question. M. Schmidt believed that the change was possible but very infrequent. Cobb and Semon claim that no case has been reported which proves the transformation. Watson collected 150 cases of sarcomata of the nasal passages, among which there was a previous history of polypi in 24. On the other hand, sarcomata have been found on the septum, where polypi almost never occur. In the cases of transformation reported there is always a lack of data concerning the growth from its inception or all parts of the tumor were not carefully ex-

amined; hence it is impossible to say that the tumor was not malignant from the beginning. Though we can not deny that transformation may occur, we can still apply to it the Scotch verdict "not proven."

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ABSTRACT OF DISCUSSION

DR. SYLVAN ROSENHEIM, Baltimore: I agree with Dr. Johnston regarding the importance of a microscopic examination of nasal growths as well as of those occurring elsewhere in the body. It is impossible to say anything definite about the character of the growth in the nose from macroscopic examination or from the history early in the case. Recently I was asked to examine a small growth supposedly benign, which had been removed from the septum of the nose by Dr. Samuel Johnston of Baltimore and found it to be a small round-celled sarcoma. It is only in this way that we can learn anything about the etiology and early diagnosis in this class of cases and prevent recurrence of the growth by complete operation. It furnishes often the only hope of cure.

DR. GEORGE KEIPER, LaFayette, Ind.: We should examine every growth that we remove from the nose microscopically, and that has been my custom for some years. By so doing we will change some of our ideas of pathology, which at present is somewhat misleading. I have found for instance, a great many more cases of angioma of the turbinate than we are supposed to have. The same is true with reference to keratosis and hyperkeratosis. We are sometimes able to make a diagnosis in this way when it is impossible by the clinical or macroscopic appearance. In making the examination we should have a piece of the normal tissue adjacent to the growth in order to compare the two; otherwise we will sometimes make great errors.

DR. J. E. LOGAN, Kansas City: I agree with Dr. Johnston in his statements regarding the use of the microscope as a diagnostic agent in determining the kind of growths presented for operation. We often find apparently benign growths to be really malignant. This fact has come to my notice more than once. We should take from these growths a large piece for examination being sure to reach beyond the cortex. I had one case in which a growth was diagnosticated a spindle-cell sarcoma by one pathologist and a fibroma by another, after a very small piece had been removed for examination.

DR. OTTO GLOGAU, New York: It is important to make a proper examination of the growths removed from the nose. I remember one dispensary case of turbinal hypertrophy in which the malignancy of the growth was not suspected, but in which microscopic examination showed that it was a sarcoma of the inferior turbinate. The patient, who had only complained of nasal obstruction and occasional nose bleeding, did not return and we felt very sorry because we had left perhaps part of the growth by removing only the hypertrophied part of the turbinate.

DR. ROY P. SCHOLZ, St. Louis: I believe that tumors of the turbinates occur much more frequently than is ordinarily thought. This I attribute to the fact that tissue removed from the turbinates seldom receives the proper examination. Recently I was called to attend a case of severe hemorrhage, following a nasal operation. The operator asserted that he had removed a piece of hypertrophied tissue from the posterior end of the inferior turbinate. It was with difficulty that the hemorrhage was checked, and this only by means of a tampon. Something struck me as being peculiar about the case. Hunting up the tissue removed I had it examined and found it to be a lymphangioma. With removal of the tampon there was again bleeding. I then thoroughly removed the remainder of the growth and had only slight hemorrhage. I recall another case in which a tumor springing from one of the turbinates gave a misleading picture. A large tumor mass completely filled the nasopharynx and obstructed the choana, protruding further anterior in the left, then in the right nasal cavity. Even after thorough shrinkage of the parts I was unable to pass a probe between the mass and posterior endge of the septum, so firmly was the tumor pressed in place. On removal (piece-meal with a snare) there was no question as to origin of the tumor, the growth having sprung from the inferior turbinate on the left side, growing over the soft palate into the nasal cavity on the other side. Microscopic examination showed the tumor to be fibroma. In the past year I have had two other cases of small tumors of the turbinates, one a small cavernous angioma; the other specimen was lost in preparation.

DR. J. J. HOLINGER, Chicago: There is no question that careful microscopic examinations are sometimes of great value, but on the other hand I think our clinical diagnosis is at least important. A woman had her nose completely obstructed by a tumor mass which at the least touch bled, and I at once had the impression that it was sarcoma. I removed a piece large enough for an examination. The answer from the laboratory was inflammatory swelling. I didn't believe it. I took out another piece, away up in the region of the middle turbinate, and again I got the answer from the laboratory, inflammatory hypertrophy, this time from a different pathologist. I entered the antrum of Highmore and opened up toward the eye and found then there was no question as to the nature of the growth as the tumor went through the bone and invaded every different class of tissue. A fresh section was made, a frozen specimen, and then a diagnosis of sarcoma was made. In another case I had removed several pieces from the anterior end of the middle turbinate and always got the answer, non-malignant. The frontal sinus had to be opened, but there was no tumor. A year afterward the man died of carcinoma of the frontal sinus which had invaded the meninges and the orbit. There was certainly no tumor at the first operation but only inflammatory changes which would not have been expected to lead to the development of a malignant tumor.

DR. EMIL MAYER, New York: That it is necessary for us always to confer with the pathologist I think no man who has had any experience at all will for a moment gain-say. I agree with Dr. Holinger, however, that it is very important to make one's own clinical diagnosis before conferring with a pathologist. It is but right that we should express our own opinion. Pathologists are just as human as others and one may get from them a second time statements that are at variance with their first ones. I recall a case that was referred to me for examination as to whether an operation should be performed or not. The patient had an intranasal growth. I learned that Dr. Welch had made a diagnosis of rhabdomyoma which was confirmed by another pathologist, while a third pathologist denied that diagnosis and made an entirely different one. It was proved, however, that the first two pathologists were right. A most interesting case of rhinoscleroma appeared in the wards of Mt. Sinai Hospital some time ago. I found thickening below both vocal cords, general induration, and an exudate in the anterior nares which when wiped away, showed some small growths lodged apparently in the upper portion of the inferior turbinate. It seemed to me to be a case of rhinoscleroma and I so stated. I sent a specimen to the pathologist and he reported that he found nothing. I sent a second specimen and he reported rhinoscleroma. What had happened was that at the first time I had not gone deep enough. In the diagnosis of these cases we need the pathologist and he needs our opinion.

DR. S. G. MINOR, Detroit: I think we must all recognize the difficulty that confronts the pathologist in making a diagnosis in these cases, especially as between round celled sarcoma and simple inflammatory tissue. I saw a case about six weeks ago which presented clinically (and in that respect I want to corroborate Dr. Holinger's words about the importance of the clinical appearance) the appearance of sarcoma of the left inferior turbinate and yet the microscopic examination after removing pretty nearly all of the inferior turbinate was that it was a benign growth; yet it recurred in a very short time and then with the clinical history of the case the pathologist switched around and said sarcoma. That was very satisfactory to me but was not so to the relatives, for I had said to them that it was a benign growth. The growth was again removed and the patient put on Coley's mixture and there has been no return. We should not give too much importance to

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the microscopic findings and disregard the clinical appearance. The pathologist can not always distinguish accurately between inflammatory tissue and round-celled sarcoma.

DR. T. W. CORWIN, Newark: Last winter I saw one case reported as fibroadenoma; a tumor about the size of a hickory nut, occupying the anterior end of the inferior meatus, on the anterior end of the inferior turbinate, which had been largely eroded. When the tumor was removed there was a large cavity at this point but healing was free of any symptoms. Another case I saw was one of a large firm mass occupying the nares of the right side near the vestibule, from the anterior end of the middle turbinate. It appeared as a reddish mass and was diagnosed by the pathologist as fibroma. A large part was removed through the anterior nares. Hemorrhage was very free and the remainder of the operation was postponed. I also encountered a case of what appeared clinically to be an angioma of the inferior turbinate on the left side. The case coming to me first presented a deflection of the septum which was corrected. It was first reported as simple connective tissue. I have since had it reported on as a hemiangiosarcoma. I have also encountered a large mass bleeding exceedingly on the slightest touch, projecting into the nasopharynx, which was supposed to be a sarcoma. In this case I tied the external carotid artery and removed the growth in November, 1908. There was pretty severe hemorrhage. The tumor was an endothelioma of the septum. I have had another case under observation of papillomata, but it has not yet been subjected to microscopic examination.

DR. W. E. SAUER, St. Louis: I desire to report a case of nasal polypi which I removed; the removal was followed by a very free hemorrhage. I suspected a malignant condition and sent a specimen to the pathologist who reported simple polypi. I sent a section to another pathologist and after diligent search he found cell nests, the tumor proved to be a very malignant carcinoma. The result does not always depend on the amount of tissue that has been furnished, but on how carefully the pathologist does his work.

DR. LEE COHEN, Baltimore: Some years ago I was interested in a remark made by Dr. Bloodgood in speaking of differentiation of nasal tumors. He spoke of the great difficulties and absolute impossibility of differentiation in many cases. A few months later I had this unpleasantly brought home to me in a case of a man of 50 who came to me with the left nostril completely occluded with a large mass, the site of which I could not determine. It had the clinical appearance of malignant growth. I had a piece examined by the pathologist, and the report sent back that it was round-cell sarcoma. It was subsequently examined by a second pathologist who confirmed the diagnosis of the first. The patient having a son living in a western city, went there on a visit, and while there consulted a specialist in that city, and the growth was considered by that specialist also as a malignant growth. The patient said that if he had to be operated on he would come back to Baltimore. The growth was removed and the base scraped and cauterized with trichloracetic acid. After several days further examination proved the presence of antrum suppuration on that side. The antrum was thoroughly opened and there has been no trouble since and that was five years ago. The pessimistic prognosis, however, that I gave was a great source of annoyance for some time.

DR. B. ALEXANDER RANDALL, Philadelphia: I have no personal contribution to make to this subject, nor is the point I wish to bring forward strictly germane to that of non-malignant growths; but I have been interested in the observations of Goodale of Boston, which I think are not sufficiently well-known. The question of Coley's serum has been brought up in the discussion and I would say that while that may have great value in cases of spindle-celled sarcoma we should recognize the point brought out by Goodale that in the round-celled variety he has had some brilliantly good results with staphylococcus inoculation. I think it is a subject of very great importance to us and that it should be better known.

DR. R. H. JOHNSTON, Baltimore: At the Presbyterian Hospital in Baltimore we examine carefully all tissues removed from the nose and have found that our statistics of these growths are gradually increasing. The reason I presented the matter was to get the opinion of other men as to the frequency of benign growths and the probability of transformation into malignant growths. Of course, I do not mean that the pathologist should make the diagnosis, but he must help us. We must remove the tissue very deeply and should give the pathologist the history of the case as to the development, whether slow or rapid, and help him in any way we can. I have had some experience in pathologic work and know that it is sometimes very difficult to differentiate between sarcoma and inflammatory tissues, but with a careful study of many sections it is possible to make a positive diagnosis. Dr. Mayer is certainly right—we should give the pathologist every chance; if necessary remove several pieces from time to time and allow him to make a thorough examination before giving an opinion.

Clinical Notes

ANOMALY OF THE GENITOURINARY TRACT

JUDSON A. HULSE, M.D.
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The patient, Mr. J. S., aged 61, died of carcinoma of the intestines. Among the postmortem findings was the following anatomic anomaly of the genitourinary tract: The right kidney was small and undeveloped, the ureter non-patulous and truant, opening into the prostatic urethra instead of into the base of the bladder. The left kidney was somewhat larger than normal and evidently did the work of two in a satisfactory manner throughout life.

Genitourinary anomaly. Diagrammatic representation of the comparative size of the kidneys and the position of the ureteral openings. A, opening of right ureter into prostatic urethra.

Had the right kidney been functionating and had this patient undergone a prostatectomy, the surgeon would have been confronted by a perplexing and perhaps serious condition.

The accompanying illustration represents, in a diagrammatic way, the comparative size of the kidneys and the relative position of the ureteral openings.

A REMEDY FOR PAROXYSMAL TACHYCARDIA

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What is meant by the term paroxysmal tachycardia is probably pretty well understood by the profession. It is not the purpose of this article to go into the study of the subject, but only to give the remedy. The name essential paroxysmal tachycardia has been given by recent authors to make the meaning more definite. By this term is meant a sudden jump of the heart beat from the normal to two or three times the normal rate. This rapid rate is maintained for a period of from a few minutes to many hours, and usually without any known cause, and is attended with a feeling of languor, lassitude, weakness and exhaustion. Up to the present no remedy has been discovered for this malady. In Nothnagel's Encyclopedia of Practical Medicine, in the volume on diseases of the heart, the author states: "Since we do not know what constitutes the disposition of these attacks we have no means of combating them."

Now I have been a sufferer from this malady since my earliest recollections. In my earlier life the paroxysms averaged about one a month, but, for the past twenty years, about once a week. Their duration has varied from a few minutes to twenty-four hours, the heart-beat rising from 72 to from 140 to 200 a minute, attended by a diminished blood pressure, and such a feeling of languor and exhaustion as to render mental or physical activity extremely difficult. I have sought relief from every available source. The long list of heart remedies has been tried in vain. The most reliable authors have been read and the most eminent of our profession consulted, but no relief found.

The advice most generally given, and that which was most in accord with the natural feelings during such attacks, was to seek rest—rest of body and mind—as complete as possible, not only to favor a cessation of the paroxysm, but to avoid the danger of cardiac paralysis, which might result from exercise. This advice I had followed, so far as practicable, all my life (and I am now 64 years of age), until I found, by accident, that it was a mistake. On July 14, 1908, during one of these paroxysms, while going in some haste to make a professional call, I discovered that, unless I ran, I would fail to catch a street car. Notwithstanding the feeling of weakness, and also of danger, I made the run of about one city block and jumped on the car. To my great surprise and delight I felt the sudden pang (which is sometimes experienced) indicating the end of the paroxysm. Now, as the attack had been continuing for two or three hours previously, I was not sure but that it might have stopped had I not taken this active exercise, but the inference was so strong as to cause the determination to try the effect of running in the next attack that might occur. In due time the paroxysm returned and I immediately started out on the street in a very rapid walk—almost a run—and when I made the circuit of one block the heart beat dropped down to the normal. I repeated this "treatment" in recurring attacks, and always with uniform success, although, on some occasions, I was compelled to make the second circuit around the block. But I learned an improvement on this mode of exercise. Instead of walking or running on the street, which was sometimes an awkward performance, I remained in my office or study and obtained the exercise by springing upward from the floor, like a girl skipping the rope. This I found more effective than running. On the occurrence of a paroxysm by actively performing this exercise the average time of its continuance is one minute. Usually, after from 60 to 100 of these upward springs from the floor, there is a cessation of the paroxysm. In a few instances the exercise has been required to be repeated, at intervals, for five minutes. It is simply the producing of a sufficient volume of blood in the heart to overcome the nerve-tangle which is the cause of the trouble. Now, as I have followed this practice, with invariable success, for almost an entire year, and covering about fifty attacks, I feel safe in giving it to the profession as a remedy.

Therapeutics

TUBERCULIN REACTIONS IN DIAGNOSIS OF TUBERCULOSIS

Although the continued discussion of this subject is almost wearisome, as the treatment and prevention of this disease is brought constantly before the general public and the profession, still it is, now, not only a matter of importance, but a matter of necessity, that the disease should be early diagnosed. Any method that will make the diagnosis possible in its incipiency will be the cause not only of the occasional successful treatment of this disease, but of its generally successful treatment. In other words, an early diagnosis, followed by the proper treatment, generally means that the disease will be stayed.

As a positive reaction to scientific tests for tuberculosis occurs in such a large number of patients who are considered healthy, and as signs of tuberculosis are found so frequently in autopsies on patients who have died of some other disease, a patient who is not well and does not present definite signs of other lesions should always be suspected of having tuberculosis.

The oldest and surest test for tuberculosis is made by tuberculin subcutaneous injections. This is the most certain test, and will almost always give a reaction in tuberculous patients, and may give it in a few other conditions. The disadvantage of this test and consequent reaction is that it should not be used when the symptoms are acute, and that it always increases the irritation and inflammation of the parts where the disease is located. In other words, a latent or quiescent tuberculous focus may be made active by an injudicious tuberculin injection or by a dose of tuberculin that is too large. It may be necessary, however, in suspected and hidden tuberculosis and when there is no definite localization to seek a definite indication of where the trouble is located. Any treatment that would cause such a local reaction would seem contraindicated when there is acute fever, pulmonary hemorrhage, severe pain, and other local signs of an active tuberculous process.

The advantage of giving tuberculin subcutaneously in minute doses as a treatment of the disease will not now be discussed.

If it is advisable, for diagnostic purposes, to use the tuberculin injection, Koch's old tuberculin is used, and the initial dose should not be more than 0.0005 c.c. in physiologic saline solution. If no reaction occurs after two or three days, the injection may be repeated and the dose increased, and if the reaction is negative it may be even run up as high as 0.005 c.c. The part

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where the injection is to be made should be thoroughly cleansed with soap and water and then with alcohol or ether. Injection is often made in the interscapular region, but perhaps as well in the lower axillary region or in the upper abdominal region. The injection should be given at night. If there is reaction the patient will show the next morning, or during that day, generally from 1.5 to 3 degrees of temperature, with some headache, backache, and general feeling of disability, and the region of injection will show swelling and redness. The region where the tuberculosis is located will also show signs of increased inflammation. The patient should be kept at rest for from one to three days after such an injection.

The next most positive test for tuberculosis is that known as the Calmette test, and Koch's old tuberculin seems to be the best tuberculin for this purpose. This test is made by putting a drop of a 0.5 per cent. solution of the old tuberculin into the conjunctival sac of the lower lid of a normal, healthy eye. If tuberculosis is present, there should be signs of conjunctivitis in from six to twenty-four hours. The percentage of successful reactions in tuberculous patients is so large that a negative reaction is almost presumptive that tuberculosis is not present. A positive reaction can probably occur occasionally in non-tuberculous patients. Rarely a severe inflammation of an eye has been caused by this instillation, but it is probably because the eye became otherwise infected.

In May, 1907 (*Berl. klin. Wchnschr.*), C. F. von Pirquet described his skin test for tuberculosis. Koch's old tuberculin seems also to be the best for this test. Any part of the body may be used, but the arm and often the forearm is perhaps the most frequently selected. The part to be vaccinated is cleaned as for the subcutaneous test, then a drop of the undiluted old tuberculin is placed on the part selected, and four or five inches down the arm is placed another drop. Midway between the two drops a small spot is scarified with an instrument that has never been contaminated with tuberculin. The scarification should be just through the epidermis to the point of causing an oozing of serum. Now the skin under the tuberculin drop should be gently scarified until the tuberculin is really scarified into the skin. The aim of the scarification should be not to draw blood. The parts are then left to dry in the air. They may then be left uncovered, or a linen handkerchief may be gently fastened over the part to prevent chafing.

A typical reaction is shown by a raised papule surrounded by an inflammatory area which appears in from twenty-four to forty-eight hours. This papule is surrounded by a reddened areola of from one-eighth to one-fourth of an inch. The control scarification should not show such a reaction. The susceptibility to this skin reaction seems to be decreased in tuberculous patients from childhood to the adult age, although the reaction is generally positive in all tuberculous patients. It may be positive in patients who are suffering from some other disease. A negative reaction to this skin test is of great value in excluding tuberculosis. If the reaction is positive, the ocular, or Calmette, test should be tried. If both the skin and the conjunctival tests are positive in patients, tuberculosis can be declared almost positively to be present. A recent article by von Pirquet on the cutaneous tuberculin reaction will be found in the *Journal of Pharmacology and Experimental Therapeutics*, June, 1909.

Early in 1908, Moro described a tuberculin skin test without scarifying. This test consists of rubbing into a small area of the skin a little (about 0.3 gm. or 5 grains) of an ointment composed of six parts of the old tuberculin in five parts of lanolin. The test is also as well made by gently rubbing into the skin a drop of the old tuberculin undiluted. It is well to protect the finger while rubbing with a rubber cot. A portion of the skin of the abdomen is generally selected, and is cleansed in the usual manner. The part treated is covered with gauze to prevent friction from the clothing, and a positive reaction should appear within from twelve to twenty-four hours, and consists of a general redness and the appearance of a number of small papules. This test seems to be almost if not quite as satisfactory as the von Pirquet vaccination test.

The advantage of these skin tests, i. e., the von Pirquet and the Moro, is that general systemic reaction is not caused by them, fever does not seem to be increased, and nausea, vomiting, and muscle pains do not occur. These cutaneous tests seem more diagnostic in young children than when used in adults. Both a latent and an active tuberculosis seem to react similarly to the cutaneous test.

The cause of the reaction to tuberculin applications and injections seems to be a hypersensitizing of the patient by the tubercular infection to which the name of "anaphylaxis" has been given. This ability to react is prognostically of good omen, and a tuberculous patient who can not react has lost his ability to fight the disease.

Tuberculin reactions may occur in acute infections such as typhoid fever, diphtheria, scarlet fever, rheumatism, and septic processes, and may occur in some chronic conditions as diabetes and syphilis. On the other hand, some eruptive diseases of childhood, as measles, have seemed to inhibit the reaction from the tuberculin cutaneous tests.

All the tests may show a latent or quiescent tuberculosis or a condition that needs no active treatment. Negative reactions seem to point to the entire absence of tuberculous lesions or infection. Positive reactions, especially if confirmed by more than one test (for instance, the skin and ocular tests), combined with suspicious localizations, seem to point positively to tuberculous processes, and if the symptoms are acute the disease is active, and if the lungs are affected, even if the sputum is absolutely negative, and even if the cough is not present, proper rest and fresh-air treatment should be instituted. The conjunctival test seems to be the one that is the least likely to show a latent or quiescent tuberculosis, but ordinarily the skin test should be first selected.

To sum up, the first test should be either the Moro or the von Pirquet. If these are negative, the patient may be considered to have no tuberculosis. If the skin test is positive he may have an active or a latent tuberculosis. The conjunctival test should then be tried. If this is negative his tuberculosis is doubtless latent and the reaction has probably occurred from some healed lesion. If it is positive, the patient may be considered to have an active tuberculous process, and should be treated accordingly.

The greater the intensity of the reaction and the sooner it makes its appearance probably shows the more acute nature of the tuberculous process, and also indicates that the fighting powers of the individual are actively at work.

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[For other information see second page following reading matter]

SATURDAY, JULY 24, 1909

THE HYPOPHYSIS CEREBRI

Our knowledge of the physiology of the hypophysis and of the symptomology of its diseases is largely a matter of recent years. It is satisfactory to know that so large a portion of it is due to work that has been, and is being, done in this country, as is shown by the Oration on Surgery by Dr. Cushing in this issue. As he says, our first insight into a possible functional activity of the gland is due to the modern comparative anatomists and embryologists and it seems a little surprising now, in the light of recent discoveries and considering the large number of castrated animals that must have been used in their investigations, that some suggestions of the function were so late in occurring to the observers. However this may be, within the last decade or two the progress has been eminently satisfactory, considering the difficulties in the way. The successful surgery of the hypophysis is one of the marvels of modern medicine, imperfect as the results have been as yet, and while, as Cushing admits, we are still very far from a satisfactory organotherapy of the hypophysis, the prospect seems hopeful that we may in the near future find something in this line also that may be of medical value. We can not reasonably prophesy any such brilliant results as have been obtained with the thyroid, but one or two observers have reported success with hypophyseal extract in the treatment of disorders of its normal function or those of closely related glands, like the ovaries, probably secondary to disease of the hypophysis. The surgery of the pituitary gland will necessarily be always attended with considerable risk and be justifiable only as a life-saving operation and for the preservation of the most important functions.

Notwithstanding the fact that Cushing finds that the entire removal of the gland is always fatal in dogs, it does not appear to be necessarily so in man, as Hochenegg's case proves. The real difficulty is in the inaccessibility of the gland, the danger of infection if the transsphenoid route is used, and the extreme handling of the brain which the intracranial approach requires; and these conditions exist, no matter how much or how little of the gland is to be removed. It may be that in the near future the technic will be so improved that these difficulties will be largely overcome, a much to be hoped for result.

Cushing's suggestion, that symptoms of hypophyseal origin probably occur in association with many other diseases in which they are overlooked, seems exceedingly probable in view of the fact that he himself reports finding frequent histologic alterations in glands taken at random from autopsy material. If our attention were more definitely centered, he says, on the activities of this gland, the symptoms attending such alterations would be more frequently observed. The known functional interrelations of the ductless glands would lead us to infer a possible and indeed a probable relation in the pathologic conditions. The disorder of one gland may well affect the function of another, and from this the hypophysis—unless we consider it a higher organ affecting others and not being affected itself—would not escape. There is a wide field for observation here which has not, to say the least, been so far over-cultivated. It is possible, though Cushing does not specially suggest it, that a number of abnormal conditions of delayed or morbid adolescence may have their origin in some perversion or alteration of the function of the anterior lobe of the hypophysis.

Since this organ is present in all vertebrates except the very lowest fishes or chordates, comparative anatomy, which, as said before, gave us the first insight into the possible function of this organ, may yet, when a more comprehensive knowledge is obtained, throw still new light on the subject. Even paleontology may yield some suggestive facts to supplement the data afforded by comparative anatomy and physiology. It is, however, from the experimental methods combined with clinical observations and experience that our main acquisitions on this important subject, so well discussed by Cushing, will have to be obtained.

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TRICHINA EMBRYOS IN THE CIRCULATING BLOOD

A controversy has long existed as to the manner in which trichina embryos are distributed after leaving the intestine, some writers contending that they migrate chiefly through the lymph spaces; others that they are distributed by the blood stream. In an experimental study in 1894, Graham observed the embryos in the arteries of rats and in hemorrhagic lesions in the lungs, and Stäubli,[1] in 1905, by a special method succeeded in finding them in the heart's blood of infected guinea-pigs and more recently in the blood from the ear of these animals. His method consisted in laking the blood with 3 per cent. acetic acid, centrifugating and examining the sediment. At that time he predicted the use of this method for finding trichina in the blood in human cases for diagnostic purposes, but reported no cases.

Recently Herrick and Janeway,[2] using Stäubli's method, have fulfilled his prediction, finding the parasites in the human blood in a case of trichiniasis. The blood may best be obtained from a vein at the elbow by

1. Verhandl. d. Kong. f. klin. Med., Wiesbaden, 1905, p. 354.
2. Arch. Int. Med., April, 1909, iii, 263.

means of a small syringe. Three cases were examined, and in one they were found after a brief search. The fact that they occur in the circulating blood proves conclusively that this is one way in which they are distributed, though it does not prove that they are not also distributed through lymphatics. Indeed, it is certain they do migrate along the connective tissue spaces, since they are commonly found here and at some distance from blood vessels. It is, therefore, probable that they are distributed by both methods, passing through the various tissues, spaces and vessel walls indifferently.

A more extensive study of the blood in these cases is necessary to determine in how large a percentage of cases positive results may be obtained, and on this the value of the method for diagnosis will depend. Should it prove satisfactory, it will be an improvement on the common method of excising or "harpooning" a piece of muscle from some part of the body for microscopic examination—an ordeal not permitted in all cases.

THE HARMFUL EFFECTS OF ACETANILID, ANTIPYRIN AND PHENACETIN

One of the most interesting and, for physicians, most instructive bulletins published by the Bureau of Chemistry at Washington has recently been issued[1] on "The Harmful Effects of Acetanilid, Antipyrin and Phenacetin," by Dr. L. F. Kebler, with the collaboration of Drs. F. P. Morgan and Philip Rupp. For some time THE JOURNAL and a few other medical journals have been warning physicians of the dangers of the indiscriminate use of these valuable drugs; likewise a few of the better lay journals, among which *Collier's* and the *Ladies' Home Journal* take first rank, have carried the same warning to the public. The authors of this bulletin say regarding the *raison d'être* of the investigation made by the government on this subject: "The purpose of the inquiry was not to depreciate in any way the value of these substances as medicinal agents, but rather to furnish information to the public which would enable them to understand that these remedies should be employed with caution in the absence of reliable medical advice. . . ." And further: "The harm done by acetanilid does not result from its proper use under the direction of the physician, but is mainly the result of the promiscuous and indiscriminate use of the product by the laity."

With regard to the habit-producing qualities of acetanilid, antipyrin and acetphenetidin (phenacetin), the bulletin states that "the habit is acquired in most instances through the use of the remedy without the supervision of the physician for the relief of the minor aches and pains, especially headache." This fact was further emphasized by the statistics collected which showed that "proprietary preparations were used in at least 50, or 44.6 per cent., of the 112 instances of the habitual use of acetanilid." As to the toxic qualities of acetanilid the following is instructive: Of the total number of cases of poisoning recorded, "more than one-third were reported during the year and a half following the advent of acetanilid as a medicinal agent in August, 1886. . . ." These cases were, doubtless, nearly all due to physicians' lack of knowledge regarding the toxic properties of what was then a new drug. As physicians learned of the danger "the number of cases of poisoning fell off rapidly, and during the thirteen years following 1891 the number averaged but six annually."

Then came the innings of the nostrum exploiter and "headache cures," "brain foods" and fake synthetic analgesics flooded the market and were indiscriminately used by the public. The result was a large number of cases of poisoning reported during this later period—since 1904. The "notable increase," both in the number of cases and in the number of deaths, is accounted for by the government investigators as follows: "This can be adequately explained by the fact that during recent years the control of acetanilid as a remedial agent has rapidly passed from the hands of the medical profession to those of the laity, *owing largely to the advertising efforts of the manufacturers of proprietary medicines.*"[1] The use of nostrums containing acetanilid has increased enormously during the past few years. We read, in fact, that, while proprietary preparations containing acetanilid are not mentioned in the reports from 1897 to 1904, inclusive, yet in 1905 proprietaries were responsible for 55.5 per cent. of the cases of poisoning reported, in 1906 for 63.1 per cent., and in 1907 for no fewer than 87.5 per cent. THE JOURNAL has been accused of being too severe on the "headache powders" and similar preparations; this, too, not only by the proprietary interests, but occasionally by its friends. Certain it is that THE JOURNAL has never made such a scathing arraignment as that of this government document.

When Samuel Hopkins Adams published, in *Collier's Weekly*, an appalling acetanilid death record, an attempt was made to discredit this report by an "editorial" in the *St. Louis Medical and Surgical Journal* for December, 1905, entitled "Collier's Methods Exposed"; fortunately for the name of medical journalism, this journal went out of existence very shortly thereafter. Reprints of the "editorial" (undated, however) have been industriously circulated since, presumably by those interested in the sale of coal-tar remedies. We may confidently expect, since the government has now issued a bulletin on the same subject, that some other renegade medical journal will come to the rescue with an editorial on "Government Methods Exposed." In this it will be demonstrated, no doubt, not only that the bulletin itself is a tissue of falsehoods, but also that acetanilid-, antipyrin- and acetphenetidin-containing nostrums "do not depress the heart," are a good "brain food" and are, in fact, the most harmless and innocuous "patent medicines" on the market. Meanwhile, we advise every physician to write to Washington for Bulletin 126 of the Bureau of Chemistry, entitled "The Harmful Effects of Acetanilid, Antipyrin and Phenacetin."

1. Italics ours.—Ed.

BUTTERMILK THERAPY

Metchnikoff, Massol and several other authors have recommended fermented sour milk as prepared in Bulgaria, or a similar product, prepared according to Metchnikoff's method from pure cultures of bacteria, as a panacea for many ills. Appendicitis, tropical dysentery, typhoid fever and other diseases are said to be cured or at least benefited by the treatment with sour milk or buttermilk. Intestinal putrefaction, intestinal autointoxication and some nervous and digestive derangements said to be brought about by these conditions are supposed to be favorably influenced by sour-milk therapy, and consequently, according to Metchnikoff, the habitual use of sour milk prepared with the Bulgarian bacillus is conducive to long life. As support to this last suggestion it is stated that in Bulgaria there are relatively more centenarians than in other countries of Europe. Other factors, however, such as race predisposition; outdoor life and absence of effeminating luxuries, which might contribute to a similar result, have not been given due consideration.

The influence of sour milk on intestinal putrefaction and intestinal bacteria has been investigated by many observers. Thus Combe, Cohendy, Löbel and other French, German and English authors have published the results of experiments and clinical studies, from which they conclude that the extensive consumption of sour milk is decidedly beneficial. The success of the treatment is universally ascribed to the lactic acid in the milk or the lactic acid assumed to be produced by the bacteria in the digestive tract. The evidence, however, is by no means convincing. The work of many is characterized by lack of proper control and by neglect of the possibility that other factors might have influenced the results, and it is not altogether safe to accept the sanguine conclusions published. It has been recognized before the present era of sour-milk therapy that a liberal amount of sweet milk and carbohydrates, and a reduction of meat in the diet were beneficial in reducing intestinal putrefaction. It has never been shown conclusively that lactic acid bacteria produce lactic acid in the digestive tract in sufficiently large quantity actually to inhibit putrefaction. The experiments of some observers, who have made deductions from the results of a sour-milk diet to the exclusion of all other food, are of little value, since it is not likely that any one would live on such a diet except for experimental purposes. Some experimenters who have taken sour milk prepared with the Bulgarian bacillus have found this organism in the feces after five to six days. Hall and Smith found it under similar conditions after one day, and Heinemann and Hefferan have found it regularly in human feces (and in market milk) without artificial introduction. Most observers seem not to have examined normal feces before the ingestion of sour milk.

Some rather absurd statements are found in the literature on the subject. For instance it is stated that milk should not be heated before using lactic ferments, since heating destroys the natural lactic acid bacteria present, and that consequently their restraining influence on injurious bacteria is lost. The inhibition exerted by the few lactic acid bacteria in fresh milk is negligible as compared with the antagonistic influence of the enormous numbers of lactic acid bacteria in artificial cultures which are used for inoculation of the heated milk. The bold assertion that the intestinal flora can be changed at will by introducing lactic acid bacteria seems to be without sufficient evidence. The reduction of putrefactive products when sour milk is taken is ascribed solely to the activity of lactic acid bacteria or the lactic acid produced by them. It has not been considered that sweet milk and carbohydrates with a simultaneous reduction of meat in the diet might possibly have a similar effect. In regard to buttermilk, it does not seem to have been taken into account that the precipitation and fine distribution of the casein, the reduction of the amount of fat and the partial conversion of the milk-sugar into acid may be factors largely responsible for beneficial results.

Recently pure cultures of lactic acid bacteria, especially of the *B. bulgaricus*, have been recommended for reducing and curing abscesses, catarrh and other troubles caused by pyogenic bacteria. The principle involved is the antagonism of lactic acid bacteria to pyogenic bacteria, the acid produced by the former inhibiting the latter. This theory is attractive, but the evidence in its favor is, as yet at least, meager and unscientific, because of the absence of control observations.

The benefits derived from the use of buttermilk, sour milk and cultures of lactic acid bacteria for digestive and suppurative troubles are doubtful, and too much confidence should not be placed in the application. More evidence and that, too, of varied nature is required before reliable conclusions can be drawn. If this form of treatment is resorted to, the physician should not place too much dependence on commercial preparations in tablet or powder form. When possible, it is better to obtain pure cultures from reliable laboratories where frequent transfers are made so that the purity and activity of the organisms are preserved.

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BENZOATE OF SODA AND TOMATO CATSUP

The statement that chemical preservatives in general, and benzoate of soda in particular, are used by many manufacturers of foodstuffs to cover inferior material, has been frantically denied by the makers and users of such preservatives. A recent judgment of the United States court throws some light on this vexed problem. Over six hundred cases of tomato catsup prepared by S. J. Van Lil, of Baltimore, were seized by the government and subjected to examination. The cases were labeled in part "Navy Brand Catsup. Prepared with one-tenth of 1 per cent. Benzoate Sodium. . . . This catsup is superior on account of its Fine Zest and True Tomato

Flavor. Made from Choice Ripe Tomatoes. . . ." Examinations of the product, verified by a previous inspection of the factory where it was made, showed that the "Choice Ripe Tomatoes" consisted in fact of the "pulp screened from peelings and cores of tomatoes" and the "waste material of canning factories." This nasty mess had been embalmed with the benzoate of soda. The S. J. Van Lil Company entered its claim to the goods, but did not contest the allegations made by the government; the court, therefore, decreed that the catsup should be destroyed. We may now presumably look for a fresh batch of articles from the press agents of the preservative manufacturers, and such advocates of embalmed foods as the *American Food Journal* may be relied on to come promptly to the rescue of those interests which live and move and have their being in the "doping" of foods.

Medical News

ARKANSAS

Society Meeting.—At the annual meeting of Nevada County Medical Society, held in Prescott, Dr. Albert S. Buchanan was elected president and Dr. William W. Rice, secretary, both of Prescott.

Personal.—Dr. J. S. Shibley, Paris, president of the Arkansas Tuberculosis Association, has been selected as superintendent of the State Tuberculosis Sanatorium.——Dr. A. E. Tatum has been appointed chairman, Dr. Henry Pase secretary, and Dr. L. K. Charles a member of the board of health of Eureka Springs.

CALIFORNIA

Medical Society Reorganized.—Kings County Medical Society was reorganized at Hanford, June 12, with the following officers: President, Dr. M. J. H. Woolf; vice-president, Dr. J. Allen Crawshaw; secretary-treasurer, Dr. Robert W. Musgrave, and censors, Drs. Charles T. Rosson, Lucius E. Felton, and Charles L. Scott.

Salaries Raised.—The State Commission in Lunacy, at its meeting in Sacramento, June 10, decided to raise the salaries of the superintendents of the six state hospitals from $3,000 to $3,600 a year; to increase the salaries of first assistant physicians $300 a year; of second assistant physicians $200 a year, and third assistant physicians, $300 a year Salaries of the fourth assistant physicians will begin at $90 per month and increase with length of service.

IOWA

Sanitarium Burns.—Storm Lake Sanitarium, a private institution owned by Dr. David H. Nusbaum, was entirely destroyed by fire June 18, with a loss of about $16,000. The patients escaped without casualty.

Suggestive Healer Found Guilty.—Bruce Hedberg, a practitioner of "suggestive therapeutics and psychology" is said to have been found guilty at Des Moines, May 27, of practicing medicine without a license, and sentenced to pay a fine of $300. On his failure to pay the fine he is said to have been committed to the county jail June 18, where he will be imprisoned for fifty days.

KENTUCKY

Personal.—Dr. L. S. McMurtry, Dr. and Mrs. Joseph M. Mathews, and Dr. James M. Ray, Louisville, have gone to Europe.

New Faculty Appointments.—Announcement has just been made that the board of trustees of the University of Louisville has declared vacant all the chairs of the medical department and has made appointments as follows to fill the vacancies: J. M. Bodine, Thomas C. Evans, C. W. Kelley, William H. Wathen, J. B. Marvin, L. S. McMurtry, H. H. Grant, H. B. Ritter, I. N. Bloom, J. M. Ray, W. E. Grant, Louis Frank, Garland Sherrill, William A. Jenkins, T. L. Butler, S. G. Dabney, William Cheatham, W. O. Roberts, P. F. Barbour, A. O. Pfingst, George A. Hendon, Hugh N. Levell, Edward Speidel, E. R. Palmer, Bernard Asman, Charles W. Hibbitt, Irvin Abell, V. E. Simpson, Granville Hanes, B. F. Zimmerman, Carl Weidner, Henry Enos Tuley, John G. Cecil, William C. Dugan, Cyrus Field, and Harris Kelly.

MARYLAND

Hospital Addition.—St. Joseph's Hospital, Baltimore, will erect a two-story addition at an expense of $10,000, to be used as a dispensary.

Personal.—Dr. H. Barton Jacobs, Baltimore, has returned from Europe.——Dr. Thomas C. Gilchrist and James J. Mills, both of Baltimore, sail for Europe shortly.

Instruction of Militia Officers.—A camp of instruction for medical officers of the militia was begun at Antietam July 16. There are 82 officers in camp under the instruction of eleven members of the Medical Corps of the Army who give instruction in sanitation and conduct of camps and hospitals. The camp will close August 11.

Pure Food Law.—The Baltimore Drug Exchange, composed of wholesale druggists of Baltimore, has decided to make another strenuous fight for the passage of the pure food and drugs act by the legislature. At the last session of the legislature, all the food and drug manufacturers advocated the passage of the bill prepared by the drug exchange, but it failed to pass because of the disagreement of the house and senate whether the State Board of Health or the Maryland Agricultural College should have charge of the execution of the law.

MASSACHUSETTS

Honorary Degrees Conferred.—At the commencement exercises of Harvard University, June 29, the honorary degree of master of arts was conferred on Dr. Wilfred Thomason Grenfell of Labrador, and the honorary degree of doctor of medicine on former President Charles William Eliot of Harvard University.

Personal.—Dr. Charles H. Cook, Natick, has been appointed a member of the State Board of Registration in Medicine, vice Dr. Augustus C. Walker, Greenfield, who declined reappointment.——Drs. Walter D. Riordan, John J. Sullivan, Thomas F. Walsh, Bernard Mulholland, Thomas H. Redmond, and Emile E. Cyr have been elected ward physicians of Lawrence.

City Bacteriologic Laboratory Prepared.—The bacteriologic laboratory in connection with the Lawrence Health Department is practically completed and Dr. H. H. Nevers is ready to carry out the duties of his office. He announces that outfits for tuberculosis, Widal reaction, gonorrheal and other infections may be secured at certain stations in the city where antitoxin and vaccine may be obtained.

Assigned to Duty.—The following officers having passed the medical and examining boards of the Massachusetts Volunteer Militia, have been assigned to duty: Drs. Malcolm Seymour, D. M. Rust, G. C. Squire, A. A. Brigham, O. D. Dickerman, H. J. Kane, F. J. Young, R. D. Hood, F. H. Whittier, and H. N. Kelley.

Hospital News.—The dedication exercises of the new Charles Choate Memorial Hospital, Woburn, given by the daughter and granddaughter of the late Charles Choate to the town, were held June 29. The hospital will accommodate 15 patients.—— By the will of the late Mary J. Heyward, Chelsea, a bequest of $1,500 is made to the Frost Hospital, Chelsea.

Boston Floating Hospital.—On June 30 the Boston Floating Hospital made its first trip for the season with 54 infant patients. Dr. J. Warren Ball is resident physician; Henry C. Marble, chief of the food laboratory; Miss Isabel T. Chapman, day superintendent of nurses; Miss Hildegarde O. Lawson, night superintendent of nurses, and Miss Aesha A. Dorsey, superintendent of day patients' deck, and a number of physicians as house officers. There are also a visiting, consulting, and auxiliary staffs.

MISSOURI

Hospital Officers Elected.—At the annual meeting of the stockholders of the Springfield Hospital, Drs. Dexter B. Farnsworth, Frank B. Fuson, R. L. Pipkin, and John R. Boyd were elected directors. The directors then elected the following officers: Dr. Norman F. Terry, president; Drs. Theodore A. Coffelt and Herbert S. Hill, vice-presidents; Dr. R. L. Pipkin, secretary, and Dr. Lee Cox, treasurer.

Changes in University Faculty.—The board of directors of the University of Missouri, Columbia, have appointed Dr. C. M. Jackson, junior dean, as dean to succeed Dr. Andrew W. McAlester, resigned. Drs. Max Meyer, William J. Calvert, George LeFever, and Woodson Moss have resigned from the faculty. The board also appointed a committee to take up the matter of locating the work of the junior and senior years in St. Louis.

Society Meeting.—The seventeenth annual meeting of the Northeast Missouri Medical Society was held in Moberly, June 18, and the following officers elected: Dr. Chalmers B. Clapp, Moberly, president; Drs. Godfrey O. Cuppaidge, Moberly, and C. R. Dudley, Hannibal, vice-presidents; Dr. E. C. Callison, Kirksville, corresponding secretary; Dr. Oliver C. McEuen, Salisbury, recording secretary, and Dr. Robert Haley, Brookfield, treasurer.

St. Louis

Work Against Tuberculosis.—The Centennial Committee of the St. Louis Society for the Relief and Prevention of Tuberculosis has placed on sale 1,000,000 stamps to aid in maintaining the visiting nurse work, the provision of special diet, and the attempt to provide a day and night camp for consumptives, with special provision for tuberculous children. Fifty thousand stamps were sold in the first five days.

NEBRASKA

Child-Saving Institute.—The new plans for the Child-Saving Institute, Omaha, provide for a fire-proof building three stories and basement in height, to cover 70x100 feet of ground.

County Medical Society News.—Cedar County Medical Association met in Laurel last month and decided to merge with the Medical Association of Dixon and Dakota counties, thus forming a tri-county association.

Personal.—Dr. Henry Baldwin Ward, dean of the College of Medicine and professor of zoology in the University of Nebraska for many years, has accepted the position of professor of zoology at the University of Illinois, Champaign, to succeed Prof. Stephen A. Forbes.

State Health Officers Organize.—At the call of Dr. D. T. Quigley, North Platte, a number of health officers of the state met June 7 and 8 in Omaha and formed the Nebraska State Health Officers' Association, and elected the following officers: President, Dr. D. T. Quigley, North Platte; vice-president, Dr. Ralph W. Connell, Omaha; secretary, Dr. G. H. Marvel, Aurora; and treasurer, Dr. J. H. Mackay, Norfolk. The *Western Medical Review* was chosen as the official organ of the association. The next meeting will be held in Lincoln August 10 and 11. The association adopted resolutions recommending the adoption of uniform health ordinances for cities of 5,000 population or over with a medical practitioner as health officer, and in cities of less than 5,000 population, uniform health ordinance, creating a board of health, one member of which shall be a regular licensed physician. Other resolutions deal with the care to be taken of sputum of tuberculosis patients and the prevention of that disease, the enforcement of the ordinance of the State Board of Health regarding infectious and contagious diseases and quarantine, enlightenment of the public regarding venereal diseases, the medical inspection of school children, school houses, prevention of rummage sales, the carriage of disease by pet animals and vermin, disposal of garbage, pollution of railroads by the right of way, the pollution of ice, the disposal of scrubbings and slops, the installation of fly-proof garbage cans, the care of stable manure, and the disinfection of earth closets.

NEW JERSEY

Hospital News.—The new $2,000,000 hospital for the insane at Overbrook was formally inspected June 11 by the County Board of Freeholders. The institution will accommodate 1,300 patients.——The new public hospital in West Millville was formally opened June 15.

Creameries and Dairies Inspected.—The total number of creameries inspected during June numbered 73. Of this number 3 were for the first time inspected and 70 reinspected. Fifteen letters were sent to creamery operators and 26 water samples were collected from creamery premises. The total number of dairies inspected was 11. Of these the number scoring above 60 per cent. amounted to 6, the number scoring below 60 per cent. was 5; the number of dairies first inspected was 6; the number of dairies reinspected was 5, the number to which letters were sent was 14, and the number of water samples collected from dairy premises was 14.

Vital Statistics for June.—During the month ended June 15, there were reported to the Bureau of Vital Statistics 2,937 deaths, a decrease of 18 from the previous month. The deaths under one year numbered 446; over one year and under five years, 268; and sixty years and over, 894. Chief among death causes were tuberculosis, 406; diseases of the circulatory system, 402; diseases of the nervous system, 359; pneumonia, 292; Bright's disease, 193; diseases of the digestive system, 169; diseases of the respiratory system, 165; cancer, 151; infantile diarrhea, 51; suicide, 40; diphtheria, 38; scarlet fever, 36; whooping cough, 29; measles, 23; typhoid fever, 16; cerebral spinal meningitis, 19; and malarial fever, 2.

NEW YORK

Lunacy Boards Get Options.—Options have been obtained on 550 acres of land in Westchester county, near Yorktown, for an asylum for the insane. The total amount of the consideration is $132,000.

A Farm for Convalescents.—The Holiday Farm of Staatsburg, Dutchess county, has received the approval of the State Board of Charities for its work as a convalescent home for children from New York City hospitals.

Memorial to Philanthropist.—In the presence of the employés of the Bausch and Lomb Optical Company, a bronze and marble testimonial in honor of the late Henry Lomb was unveiled in the factory of the company July 8. The memorial is a bronze tablet resting on a polished pedestal of marble. The tablet bears as its inscription the last public utterance of Captain Lomb, "Think of Others First, Yourselves Afterward."

To Protect West Point.—As the result of a recommendation by Major Charles M. Gandy, the residents of West Point have been cautioned against using ice cut outside West Point. This step was taken in order to guard against typhoid. During the past winter typhoid existed in some of the neighboring towns and as much of the drainage is imperfect it is feared that some of the ponds from which ice has been cut may have been infected.

Newburg to Have Hospital.—Ex-Gov. Benjamin B. Odell, Jr., has presented the tuberculosis committee of Newburg with a hospital and camp for the treatment of patients suffering from tuberculosis. He has given a four-acre plot of ground, the dwelling to be used as an administrative building, and will erect an infirmary costing $25,000, to which he will add as demands may require. It is expected that the hospital will be ready for occupancy by the middle of August.

Suicides on the Increase.—Statistics received by the State Department of Health show that self-inflicted deaths are on the increase. In 1907 there were 1,207 suicides in the state and last year there were 1,419, an average of 117 a month. The first five months of 1909 show an average of 124 a month, and on the present basis there will be 1,550 suicides for 1909. The number of those who destroy themselves is greater than the number dying from typhoid, diabetes or rheumatism. Although there has been an increase of suicides in the state there has been a decrease in New York City. The total in Manhattan for the first five months of this year is 201, while for the same months last year there were 231. The statistics show that the most frequent method used is poison, and gas is the second most frequent.

New York City

Personal.—Dr. Ramon Guiteras has returned from a hunting expedition in Africa.——Dr. Ernest V. Hubbard has been appointed police surgeon.——Dr. and Mrs. Ludwig Kast have sailed for Europe.——Dr. and Mrs. Walter E. Lambert and Dr. Henry H. Tyson have sailed for Europe.

Medical School Enlarged.—Dr. Herman M. Biggs, of the health department, has transferred to the New York University, three buildings on First avenue and Twenty-fifth street, adjoining the New York University Medical School. The buildings will be torn down and an addition to the school erected.

Fight for Health Inspectors.—The Civil Service Protective Association will support the Medical Protective Association in its fight for restoration to office of 105 health inspectors in Brooklyn. It is reported that the case will be carried to the Court of Appeals. An epidemic of measles is thought to have been improperly handled as a result of the discharge of these men.

"Typhoid Mary" Denied Her Freedom.—The Supreme Court has decided that "Typhoid Mary," as she is called, must return to North Brother's Island, where she has been detained for the past two years, because she had been shown to be a typhoid carrier. The court expressed the opinion that she should have every opportunity to establish, if she can, that she is fully cured. After further examination she may renew her application for freedom.

Fewer Accidents.—Accidents on traction lines in this city for the month of June show a marked falling off from the figures of the same month of the year 1908. The number of deaths this year was 29, as compared with 42 last year. The total number of accidents fell off 856. These favorable results are attributed to the work of the Public Service Commission, which has insisted on the lines being properly equipped with air-brakes, fenders and wheel guards.

City Makes a New Low Record.—The week ending July 10 showed the lowest death rate ever recorded for a summer month. This rate was 14.37 per thousand population as com-

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pared with 17.88 for the corresponding week of last year. The health department attributes this reduced mortality to the cooler weather and to a better milk supply and better education in regard to the care of infants. Last week 303 infants under 1 year of age died, while 508 died during the corresponding week of last year. During the first six months of this year only 414 babies died from diarrheal disease compared with 773 for the same period of 1908. Prior to July 1, nurses had visited 15,000 babies. About sixty private agencies are cooperating with the health department in the endeavor to reduce infant mortality.

NORTH CAROLINA

Hospital Opened.—The new Harrill Hospital, recently built at Caroleen, was formally opened for patients July 6.

Personal.—Drs. Edward Jenner Wood and Robert Harlee Bellamy, Wilmington, have been appointed a special committee by the State Board of Health to study and report on pellagra in North Carolina.——The following physicians have been designated to represent the Medical Society of North Carolina in the coming decennial revision of the U. S. P.: William L. Dunn, Asheville; William D. MacNider, Chapel Hill; and Edward Jenner Wood, Wilmington.——Dr. Richard H. Lewis, Raleigh, has gone to Alaska.——Dr. James W. Peacock has been elected health officer of Thomasville.——Dr. Benjamin K. Hays, Oxford, secretary of the State Board of Medical Examiners, is spending the summer at Buffalo Lithia Springs, Va.——Dr. Joseph Graham, Durham, has retired from general practice and will devote himself to the practice of surgery.

PENNSYLVANIA

April Deaths and Births.—The total number of deaths, exclusive of stillbirths, during the month from all causes was 9,960, distributed as follows: pneumonia, 1,456; tuberculosis, 986; Bright's disease and nephritis, 502; diseases of early infancy, 471; violence, 390; cancer, 372; influenza, 230; accidents, 211; diarrhea and enteritis of children under 2 years of age, 191; measles, 170; diphtheria, 130; scarlet fever, 121; typhoid fever, 114; suicide, 111; whooping cough, 107; diabetes, 82; diarrhea and enteritis, of children over 2 years of age, 81; meningitis, 76; and all other diseases, 4,159. The total number of births recorded in the state during the month, exclusive of stillbirths, was 15,511, the total number of stillbirths being 819.

Philadelphia

Smallpox Case Reported.—A case of smallpox was discovered in the northwest section of the city July 12, and the immediate neighborhood was roped off, temporarily quarantined, and the residents to the number of 1,000 were vaccinated by the city's medical inspectors. The patient was removed to the new Municipal Hospital.

New Dispensary for German Hospital.—A contract has been awarded for the erection of a basement and a one-story dispensary building for the German Hospital. The dimensions of the new structure are 50x130 feet, and it will be erected at a cost of $47,000, and will be so arranged that additional stories may be added in the future.

Personal.—The following physicians have gone to Europe: David B. Kyle, William Zentmayer, Donnel Hughes, Albert P. Francine, Milton B. Hartzell, John H. Musser, George E. Pfahler, Warfield T. Longcope, J. H. Gaskill, James M. Anders, William G. Winder, Herman Heller, Ross H. Skillern, John Bacon, Charles W. Bonney, and Henry D. Jump.——Dr. Aristides Agramonte, president of the Commission on Infectious Diseases of the Republic of Cuba, visited this city July 13, with the purpose of studying the methods as practiced by the local health department.

SOUTH DAKOTA

State Home for Consumptives.—The members of the State Board of Charities and Corrections have decided to establish a state sanatorium for tuberculosis in Custer county in the Black Hills, the site to be selected.

Election of Officers.—At the annual meeting of the Davison County Medical Society, held in Mitchell recently, Dr. John A. Howard, Ethan, was elected president, and Dr. Elwin F. Reamer, Mitchell, secretary-treasurer.

Hospital News.—A stock company has been organized at Hetland by the farmers. The entire sum necessary for the erection of a hospital at Hetland has been subscribed and the building will be put up at once.——The directors of the Fort Pierre Hospital have leased that institution to Drs. Charles J. Lavery and Mark Walsh for five years from July 1, for $7,500. Dr. William Schroeder and his wife will conduct the hospital until permanent arrangements are made.

TENNESSEE

Found Not Guilty.—Dr. J. Herman Feist, Nashville, charged with the murder of Mrs. Rosa Mangrum more than two years ago, was found not guilty at the trial, June 9.

Personal.—Dr. John A. Witherspoon, Nashville, has gone to Europe.——Dr. G. Frank Russell will, after an absence of about a year in Memphis, Tenn., and Baltimore, Md., return to his old home in Louisville, Ky., about August 1.——Dr. S. Walter Woodyard has been elected alderman of Greeneville.——Dr. William F. King has been appointed a member of the Jefferson City Board of Health.——Dr. Samuel B. Boyd will fill the position for the present of physician at the Tennessee Deaf and Dumb School, Knoxville, formerly held by the late Dr. John M. Boyd.——Dr. William M. McCabe has been elected superintendent and surgeon of the Nashville City Hospital.

Reorganization of Medical School.—The medical and dental departments of the University of Tennessee at Nashville will hereafter be conducted from Knoxville, but under the immediate direction of the University of Tennessee, Dr. Brown, Ayres, and the trustees of the institution. The equipment of the department was owned by the members of the faculty, but has been donated to the state institution. Dr. Robert O. Tucker, Nashville, has been appointed dean of the institution, and Dr. Daniel B. Blake, Nashville, a member of the faculty. The transfer of the Tennessee Medical College to the Lincoln Memorial Hospital to the trustees of Lincoln Memorial University has been made. The faculty of the Tennessee Medical College will be retained but will be greatly increased. The suit in chancery brought by Dr. Claudius M. Capps, Knoxville, against the Tennessee Medical College and others has been dismissed.

TEXAS

Personal.—Dr. Charles E. Cantrell, Greenville, trustee and chairman of the judicial council of the American Medical Association, was thrown from his buggy while making a call July 14, sustaining a fracture of the left leg.

VIRGINIA

Graduation Exercises.—A class of eighteen was graduated from the Medical School of the University of Virginia, Charlottesville, June 5.

Dispensary Incorporated.—The Roanoke Free Medical Dispensary has been incorporated at Roanoke without capital, to operate a free medical dispensary for the benefit of the poor.

Faculty Changes.—At the annual meeting of the University College of Medicine, Richmond, Dr. Alfred L. Gray was chosen dean of the department of medicine, vice Dr. Paulus A. Irving, who declined re-election. Dr. Paul W. Howle was elected lecturer on materia medica and therapeutics; Dr. E. Guy Hopkins, lecturer on clinical diagnosis; Dr. Robert T. Ferguson, instructor in obstetrics; Dr. F. G. Simmons, instructor in pediatrics; Dr. Charles M. Edwards, instructor in clinical diagnosis; Dr. Charles H. Lewis, assistant in the chair of clinical medicine; Dr. Paul W. Howle, bedside instructor in surgery; Dr. William B. Hopkins, clinical assistant to the chair of diseases of the nose and throat, and Dr. W. W. Gill, clinical assistant to the chair of diseases of the eye.

Personal.—Dr. Albert A. Cannaday and wife, Roanoke, and Drs. Herbert Old and Lomax Gwathmey, Norfolk, have gone to Europe.——Dr. Lewis C. Bosher has been appointed chief of the visiting staff of Memorial Hospital, Richmond.——Dr. Clarence W. Cowper has been elected alderman of the third ward, Norfolk, to fill a vacancy.——Dr. Charles M. Byrnes, for three years adjunct professor of anatomy and assistant in neurology in the University of Virginia, Charlottesville, has resigned to accept the position of instructor in neurology in the Medical Department of Johns Hopkins University.——Drs. John G. Trevilian and William S. Gordon have resigned as members of the medical staff at the City Home, Richmond, and Drs. John Garnett Nelson and Isaac T. Gorsline have been elected to fill the vacancy.

GENERAL NEWS AND COMMENT

Individual Cups.—The Boston and Maine System has adopted the use of individual paper drinking cups in its cars.

American Pharmaceutical Association Meeting.—The American Pharmaceutical Association will hold its annual meeting in Los Angeles, Cal., August 16-20. It is announced that there will be reduced railroad rates, the rate for the round trip from Chicago being $72.50, via the direct route, and $77.25 for return via Seattle.

Negro Baptist Hospital.—The negro Baptists of West Tennessee, North Mississippi and East Arkansas have completed

at Memphis a hospital with a capacity of 50 beds. The faculty of the University of West Tennessee Medical College will have entire control of the clinical wards. The building has cost about $20,000.

Society News.—The Medical Society of Northern Virginia and District of Columbia met in Warrenton, Va., June 24, and elected Dr. Stephen Harnesberger, Catlett, Va., president; Dr. Charles S. White, Washington, D. C., secretary-treasurer, and Dr. Tunice C. Quick, Falls Church, Va., councilor.——The annual meeting of the Baltimore and Ohio Association of Railway Surgeons was held in Cincinnati, July 2. St. Louis was selected as the place of meeting for 1910. The following officers were elected: President, Dr. James O. Howells, Bridgeport; vice-presidents, Drs. Summerfield B. Bond, Baltimore, and Newton R. Eastman, Mount Vernon; secretary-treasurer, C. E. Johnson, Baltimore, and executive committee, Drs. John Palmer, Wilmington, Del., and Frank C. S. Blessing, Pittsburg.

New British Periodical on the Heart.—The first number of *Heart*, a medical magazine to be devoted entirely to the study of the heart and circulation, has just appeared. The editor is Thomas Lewis and on the editorial staff are many well-known men from this country and abroad, therefore bespeaking for this publication a high standard of excellence. It is intended that this journal will focus together the work of the laboratory and of the hospital ward, presenting the physiologic and clinical aspects of all problems concerned with the circulatory apparatus. In the present number there appear articles by Cushny, MacKenzie, Lewis and Hill. The mechanical work is excellent, although, owing to the size of the page, a little more space between the lines would be of great help to the reader. Apparently only original contributions will be published. Even no editorials appear in this issue. *Heart* is published in London by Shaw and Sons, Fetter Lane, Fleet street, E. C., at $5.00 a year. We are unable to find any indication on the copy in hand as to whether the intention is to publish it weekly, monthly, quarterly or otherwise.

FOREIGN

New Insane Asylum in Italy.—The corner-stone of a new insane asylum was recently laid three miles outside of Rome. It is to have a capacity of 1,000 beds, and be built with a number of separate buildings and farm colony.

Schaudinn Medal Awarded to Prowazek.—The prize founded as a memorial to Fritz Schaudinn, the Schaudinn medal for achievements in microbiology, was awarded on the anniversary of his death, June 22, to his successor, S. von Prowazek, at the Hamburg Institute for Marine and Tropical Diseases. The committee in charge of the awarding of the prize consists of twenty-four scientists in various countries, including Blanchard, Ehrlich, Golgi, Kitasato, Koch, Laveran, Manson, Novy, Nuttall, Ross, Wilson, Metchnikoff and Wladimiroff.

Terres Appointed Director of Mexican Medical Institute.—The President of Mexico has recently appointed Prof. Jose Terres director of the Instituto Medico Nacional, one of the leading medical institutions in Mexico. Terres has been professor of pathology and clinical medicine since 1897 until he resigned last year. He founded the *Sociedad de Medicina Interna* and was instrumental in the organization of the *Sociedad Sanitaria y Moral de Profylaxis*. One department of the medical institute has long been engaged in compiling a list of indigenous herbs and studying their therapeutic possibilities.

British Medical Association Meeting.—The British Medical Association is at present holding its seventy-seventh annual meeting in Belfast. The annual meeting of the representatives was to begin Friday, July 23. The scientific program, which will be conducted in fifteen sections, begins with the president's address on Tuesday, July 27, and continues for the three days following. The address in medicine will be delivered by R. W. Philip, M.D., F.R.C.P., Edin., while A. E. J. Barker, F.R.C.S., will give the address in surgery. The address in obstetrics will be delivered by Sir John W. Byers, M.D., and Dr. J. A. Macdonald will give the annual popular lecture.

International Congress of the Medical Press.—The fourth congress is to be held, as previously announced, just before the International Medical Congress at Budapest. The first general meeting is open to all connected in any way with the medical press, but the second is for members of the International Medical Press Association only. Among the questions to be discussed are the control of advertising, the exclusion of paid write-ups, the struggle against free medical journals, the creation of a permanent international committee, the unification of medical terminology, the unification of table of contents in medical journals, obligation for summary to be supplied with a medical article, and organization of a central international agency to publish these summaries for the exclusive use of medical journals. Schwalbe and Posner of Berlin will introduce the subject of the publication of the same article in different journals and different countries.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, July 10, 1909.

Food Adulteration

The annual report of the medical officer of the local government board for the year 1907-1908, which has just been issued, contains several matters of interest. Dr. Buchanan, chief inspector of foods, has investigated the contamination by lead and arsenic of tartaric acid, citric acid, and cream of tartar. In several instances these impurities were found. Much of the tartaric acid had not been prepared with the care which its use as a food ingredient demands. A recommendation was made in 1907 that legal limits of impurity should be established. The limits recommended were for tartaric acid, citric acid, and cream of tartar, one-seventh of a grain of lead per pound and one-hundredth of a grain of arsenic, as arsenious oxid, per pound. These limits of impurity have been found of practical utility in the trades concerned. The adulteration of vinegar with sulphuric acid is found to be still carried on.

Bacteria in Sewer Air

Dr. Andrews publishes in the report some very important researches which show that under ordinary conditions characteristic sewage bacteria are demonstrable in sewer and drain air. Bacilli of the colon group, while absent from fresh air, could be found easily in drain air and corresponded exactly with the various bacilli of this group present in sewage.

The Preservation of Dead Bodies

Dr. Reichter's apparatus for the preservation of corpses has been installed in the mortuary of the city of London and has been found most satisfactory. The body of an unknown man found drowned was brought to the mortuary on March 10 and, after a necropsy had been made, was kept in the apparatus from March 16 to April 29. It remained in a perfect condition for identification. As a month is the limit of time necessary to preserve bodies for identification, this result is considered excellent. The apparatus consists of an air-tight case in which a saturated solution of formaldehyd is allowed to evaporate and the air meanwhile is kept in circulation by a small fan.

The Retirement of Sir Felix Semon

A complimentary banquet has been given to Sir Felix Semon, the eminent laryngologist, on his retirement from practice. Mr. H. T. Butlin, surgeon of St. Bartholomew's Hospital, presided, and the company included many names distinguished in medicine and other professions. The chairman in proposing Sir Felix Semon's health reviewed his life. He referred to the fact that in the seventies of the last century specialists were abhorred by the leaders of the medical profession. Then Semon came to London from Germany armed only with his German medical degree and not knowing a word of English. He spent much of his time at the Hospital for Diseases of the Throat in Golden Square and was appointed clinical assistant. In 1876 he obtained the qualification of M.R.C.P. and began to practice in London. He procured the recognition of laryngology as a subject at the International Medical Congress held in London in 1880 and in 1881 he was appointed physician for diseases of the throat at St. Thomas's Hospital. He took an active part in founding the Laryngological Society of London. Letters, telegrams and addresses to Sir Felix Semon were received from America, Germany, Hungary, Austria, Russia, Scandinavia, Denmark, Holland, France, Italy and Spain, all paying tribute to his great services to laryngology.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, July 8, 1909.

A New Sign of Hydatid Cysts of the Convex Surface of the Liver

Before the Academy of Medicine, July 6, Professor Chauffard described a new sign of ascending hydatid cyst of the convex surface of the liver which he established in two cases. In laying the left hand below the point of the right shoulder-blade while the right hand percusses lightly and on the same level the anterior thoracic wall, one feels a very distinct vibratory undulation. One of the two patients even perceived it himself. Pleuritic effusions did not give any vibratory sensation; neither did a large dysenteric abscess of the liver con-

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taining two liters of pus. In the hydatid cysts, on the other hand, the tension of the liquid and the smooth, supple and elastic condition of the cystic membrane were favorable to the production of vibratory waves. The new sign, which Chauffard calls the "transthoracic undulation," may then be valuable to facilitate the differential diagnosis of ascending hydatid cysts of the convex surface of the liver from large abscesses in the same locality and from effusions of the right pleura.

Congress of Social Hygiene

At the national Congress of Social Hygiene which was just held at Agen Dr. Calmette of Lille, speaking of hygiene in the country and of the struggle to be carried on against tuberculosis, recommended the creation of movable disinfection posts and of a kind of sanitary police among the rural populace.

Death of Dr. Henry Cazalis

Dr. Henry Cazalis, known in literature under the pseudonym of Jean Lahor, has just died of uremia at Geneva, aged 69. He had published several volumes of verse, a history of Hindu literature, and several studies on marriage, considered from the medical point of view ("Science and Marriage," "Pathologic Risks of Marriage"); he advocated the idea of an examination of health before marriage. Quite recently, in collaboration with Dr. Lucien Graux, he published a treatise on cheap and rational alimentation.

Election at the Academy of Medicine

During its session of July 6 the Academy of Medicine elected two national associate members, Dr. Lacassagne, professor of legal medicine at the College of Medicine at Lyons, and Dr. Queirel, director of the School of Medicine at Marseilles and professor of clinical obstetrics.

A Prize of the Academy of Moral and Political Sciences

The Academy of Moral and Political Sciences has awarded the Stassart prize (3,000 francs, or $600) to Dr. Jacques Bertillon, head of the service of municipal statistics of Paris. The subject was "The Moral and Social Causes and Consequences of the Diminution of the French Birth Rate and the Recent Theories and Propagandas Which May Increase Its Dangers."

Personal

Dr. Arnozan, professor of therapeutics in the College of Medicine at Bordeaux, has been named at his own request professor of clinical medicine to fill the place of Dr. Picot. At the same college Dr. Villar, professor of operative medicine, has been nominated at his own request professor of clinical surgery to replace Dr. Lannelongue.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, July 7, 1909.

Death of Pfannenstiel

Professor Pfannenstiel, the director of the gynecologic clinic at Kiel, died July 2, from blood poisoning, at the age of 47. In 1902 he became successor of Professor Löhlein, and in 1907 came to Kiel as the successor of Professor Werth. He has been a successful worker in his specialty and, as I understand, was looked on as the probable successor of Professor Olshausen of our university. Olshausen has not only survived him but continues to hold his position in spite of his advanced age (74 years), as we have no law limiting the period of a professor's activity.

Vaccination in Russia

The Russian correspondent of the *Deutsche medizinische Wochenschrift* reports on the status of vaccination in that country which is characteristic of the intellectual condition of our eastern neighbor. The government has brought forward a bill for general compulsory vaccination, but this has been rejected by the commission appointed to consider the matter. The reason for this rejection is not known but the correspondent believes that no mistake would be made if the chief reason for this action were sought in religious objections, which are brought out by the fact that the strong sect of "old believers" (*Altgläubigen*), which includes some 10,000,000 members, oppose vaccination on the ground that they see in the vaccination scarification the sign of Antichrist. In the opinion of the correspondent the superstitious Russian people would treat physicians attempting to carry out compulsory vaccination no better than they did last summer when they set fire to a cholera hospital and cudgelled the physicians out of the village. There still remains an indirect method of compelling vaccination which consists in the requirement that every child on entering school shall furnish a medical certificate of vaccination. In addition during an extensive smallpox epidemic, all of the pupils must be vaccinated. Finally a yearly compulsory vaccination occurs on an occasion of enlistment of recruits for the army. How well these regulations are carried out in a country in which the rabble may overcome the most sacred law is uncertain.

Pharmacology

Vanadium and Its Therapeutic Uses

To the Editor:—(1) Of what therapeutic value is vanadium or any of its preparations? (2) In what form is it used? (3) What literature can be had on this subject?

E. A. W.

ANSWER: 1. The therapeutic value of vanadium was discussed in THE JOURNAL, May 9, 1908, page 1549. In addition to the statements there made, we may refer to the careful study of this substance by Lyonnet, Martz and Martin. These authors could not demonstrate any antiseptic power, since they found that in the proportion of 1 to 1,000 sodium metavanadate only slightly hindered the growth of the typhoid bacillus. The remedy appears to act much like arsenic and is regarded by Lyonnet, Martz and Martin as a "spur to nutrition." They state that *in vitro* sodium metavanadate has very little action on digestive ferments, on the sugar in the blood, on yeasts or on microbes. The claims made for vanadium have not led to its wide use; in fact until the investigations have been confirmed by reliable clinicans, the remedy must be regarded as in the experimental stage.

2. Lyonnet, Martz and Martin used sodium metavanadate, $NaVO_3$, in doses of 1 to 5 mg. (1/60 to 1/12 grain) in twenty-four hours given per os. They recommend giving the salt intermittently only two or three days a week. Le Blond and David used for internal use a solution containing 0.0015 gm. of vanadic acid, HVO_3 (1/40 grain to the quart), which they gave in doses of 2 tablespoonfuls a day. The remedy is not proprietary, although the attempt is being made to put on the market proprietary preparations for which extravagant claims are made and which are sold at a high price. The name of one of these—Vanadioserum Hélouis—suggests the idea of its being some sort of animal serum, which is misleading. The use of this rare element does not appear to be a promising field for experimentation, but if the physician desires to try it, we recommend that he obtain the pure substance through a dealer in chemicals, instead of using the proprietary preparation, the composition and strength of which are uncertain.

3. The following chronologic list includes practically all the references to vanadium in medical literature since its introduction into therapeutics:

Platt: *Lancet*, Jan. 15, 1876.

Dowdeswell: Changes in Liver. *Jour. Physiol.*, 1878, i, pp. 251-261.

Gamgee, A., and Larmuth: *Jour. Anat.*, ii, Part 2, 1879, p. 235 and 253.

Priestly, J., and Gamgee, A.: *Phil. Tr. Roy. Soc.*, Lond., 166, p. 2.

Laran: Le vanadium et ses composées, leur propriétés chimiques applicables à la therapeutique, nouveaux remèdes, 1898, xiv, pp. 130-135.

Weber, A.: De emploie des sels de vanadium en therapeutique. *Rev. gén. de clin. et de thérap.*, 1898, xii, pp. 339-341.

Lyonnet, Martz et Martin: De l'emploie des sels de vanadium. *Lyon méd.*, 1899, xc, pp. 289-302.

Luzzatta, R.: Contributo alla studio farmacologica del vanadio. *Arch. di farm. e terap.*, 1903, xi, pp. 42-82.

Le Blond, A., and David, C.: Recherche sur la proprietés de l'acide vanadique en particulier topique. *Jour. de méd. de Paris*, 1903, 2 S. xv, pp. 191-193; *Répert. de thérap.*, 1903, xx, pp. 120-123; *Rev. prat. d'obst. et de gynéc.*, 1903, pp. 175-178.

Boguslawski, S.: Preparaty vanadium. *Medycyna*, 1904, xxvii, pp. 340-344.

Perlemann, A.: Contribution a l'etude du vanadium an point de vue therapeutique et clinique. Geneve, 1904, C. Zoelner, p. 88.

Le Blond and David: *Progrès méd.*, July 14, 1906.

Correspondence

Contagion and Consistency

To the Editor:—We are going through a period of health revival and it is good to look a little at our inconsistencies: we may derive benefit from so doing. We all admire the noble, scientific and disinterested work done by investigators. From their researches we know how diseases are disseminated, carried through or by this or that insect; we understand the germ theory and the methods of proliferation of these parasites. We wage war on disease by waging war on flies, mosquitoes, rats, etc. We are extremely careful about keeping everything clean around us—at least we believe we are. Laws have been passed to quarantine (?) infected people or carve a segregation of diseased from healthy ones. In large cities isolation hospitals have been built and their construction for small towns is being agitated.

To all appearances we could well rest on the work done; but let us see to it that books, newspapers, magazines, etc., do not accumulate on tables in our waiting-rooms, because of the danger of skin and other diseases being carried from one patient to another. Having done this we could work towards having a complete sterilization of all public library books as soon as returned. Clothing and other fomites are great carriers of infection; infected clothing that has been unused for years has been the cause of epidemics. Why not, therefore, make it compulsory for physicians to wear special clothes when attending cases of contagious disease? Such clothing could be made of material easily disinfected before being worn from house to house. Did we thus set a good example ourselves and show more consistency, quarantine regulations, which in very many places are a farce, could be more easily enforced.

EMILE ROY, M.D., Wausau, Wis.

Filter Paper Test for Bile in Gastric Contents

To the Editor:—Since the publication of my article entitled "A Delicate Test for Bile in the Gastric Contents," in THE JOURNAL, May 20, 1909, p. 1758, my attention has been called to Rosenbach's test for bile in the urine. This consists in filtering the urine several times through the same filter paper and applying nitrous acid to the filter paper after drying, to obtain the reaction for bile. I have never used the Rosenbach test for bile in the urine, but, working entirely independently of that method or other methods, I have found that the filter paper test for bile in gastric contents as described by me, will detect the presence of bile, when no reaction for bile will be obtained when nitrous acid is applied to the filtered gastric contents themselves.

ALBERT WOLDERT, M.D., Tyler, Texas.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

HYPODERMATIC ADMINISTRATION OF PURGATIVES

To the Editor:—What medicine can be used hypodermatically as a purgative? C. M. WASSELL, Tillar, Ark.

ANSWER.—Podophyllo-toxin, aloin, cathartic acid, colocynthin, and citrullin are capable of producing purgation when administered hypodermatically, but they are all too irritant for practical use. Physostigmin is also not safe or satisfactory. Apocodein appears to be the only known substance which has practical value for this purpose. It produces soft but not numerous or very watery stools. From 0.02 to 0.06 gm. (⅓ to 1 grain) of the hydrochlorate may be injected with proper antiseptic precaution. The dilution should be from 3 to 1 per cent. It sometimes produces distinct irritation at the place of injection.

TENOTOMY FOR PIANISTS

To the Editor:—Please give some information about tenotomy as used to increase or allow freer movements of the "ring" finger in musicians. What results, if any, have thus been accomplished? J. H. H., Chicago.

ANSWER: Formerly the bands connecting the extensor tendon of the ring finger to those of the little and middle fingers were frequently divided by either the open or the closed method. One or both were cut, depending on the freedom of motion desired and on the amount of faith placed in the procedure. The results were disappointing as no greater increase in freedom of motion was obtained. The best evidence of the inefficiency of this procedure is the fact that the operation is now rarely performed.

The Public Service

Medical Department of the Army

Changes of stations and duties of medical officers, during the week ended July 17, 1909:

Le Wald, Leon T., capt., granted leave of absence for 25 days.

Gosman, George H. R., capt., granted leave of absence for one month, August 1st.

Shaw, Henry A., major, granted leave of absence for one month.

Loving, Robert C., capt., granted leave of absence for four months.

Birmingham, Henry P., lieut.-col., granted leave of absence for two months.

Laframme, Frank L. K., dental surgeon, ordered to Rock Island Arsenal, Illinois, for temporary duty.

Ames, John R., dental surgeon, granted leave of absence for one month.

Ryan, Edward P. R., dental surgeon, relieved from duty at Fort Leavenworth, Kansas, and ordered to Fort D. A. Russell, Wyo., for duty.

Medical Corps of the Navy

Changes for the week ended July 17, 1909:

Smith, H. W., P. A. surgeon, detached from duty at the Naval Medical School Hospital, Washington, D. C., and ordered to temporary duty at the navy yard, Boston.

Reeves, I. S. K., P. A. surgeon, ordered to treatment at the Naval Medical School Hospital, Washington, D. C.

Odell, H. E., surgeon, detached from the Naval Hospital, Mare Island, Cal., and ordered to the Naval Station, Guam, M. I.

Angenry, G. L., surgeon, detached from the Naval Station, Guam, M. I., and ordered home to await orders.

Winn, C. K., asst.-surgeon, detached from the Naval Hospital, Newport, R. I., and ordered to the Naval Station, Key West, Fla.

Public Health and Marine-Hospital Service

List of changes of stations and duties of commissioned and other officers of the Public Health and Marine-Hospital Service for the seven days ended July 14:

Bailhache, P. H., surgeon, granted three months' leave of absence from Aug. 1, 1909.

Gasaway, J. M., surgeon, directed to proceed to Tuckerton and Atlantic City, N. J., for the purpose of examining keepers and surfmen of the life saving service.

Guiteras, G. M., surgeon, directed to proceed to Austin and other points in Texas on special temporary duty.

Wickes, H. W., passed assistant surgeon, granted one month's leave of absence from Aug. 1, 1909.

Cumming, Hugh S., passed assistant surgeon, granted one month's leave of absence from Aug. 1, 1909.

Clark, T., passed assistant surgeon, granted thirty days' leave of absence from Aug. 1, 1909.

Bahrenburg, L. P. H., passed assistant surgeon, directed to proceed to Point Pleasant, N. J., for the purpose of examining keepers and surfmen of the life saving service, July 12, 1909; granted fifteen days' leave of absence from Aug. 1, 1909.

Warren, B. S., passed assistant surgeon, granted three days' leave of absence from July 6, 1909.

Ebersole, R. E., passed assistant surgeon, granted six days' leave of absence from March 6, 1909. Paragraph 191 Service Regulations.

Roberts, Norman, passed assistant surgeon, directed to proceed to Ocean City, Md., and Chincoteague, Wachapreague and Cape Charles City, Va., for the purpose of examining keepers and surfmen of the life saving service.

Mullan, Eugene H., passed assistant surgeon, granted two days' leave of absence from July 12, 1909.

Preble, Paul, assistant surgeon, relieved from duty at Baltimore, Md., and directed to report at Bureau for duty; assigned for duty in charge of the miscellaneous division.

Hunt, Reid, chief, division of pharmacology, hygienic laboratory, detailed to attend the twelfth international congress on alcoholism to be held in London, July 18-24, 1909, and the sixteenth international medical congress to be held in Budapest, Hungary, Aug. 29-Sept. 4, 1909.

Earl, F. D., acting assistant surgeon, granted seven days' leave of absence from July 20, 1909.

O'Reilly, W. J., acting assistant surgeon, granted ten days' leave of absence from July 27, 1909.

Safford, M. V., acting assistant surgeon, granted seven days' leave of absence from July 1, 1909. Paragraph 210 Service Regulations. Granted three days' leave of absence from July 15, 1909.

Schmitt, L. S., acting assistant surgeon, granted thirty days' leave of absence from July 2, 1909, without pay.

Storrs, Henry R., acting assistant surgeon, granted four days' leave of absence from July 20, 1909.

Tarbell, B. C., acting assistant surgeon, granted thirty days leave of absence from Aug. 1, 1909, with pay, and fourteen days' leave from Aug. 31, 1909, without pay.

Weeks, Alamson, acting assistant surgeon, granted thirty days' leave of absence from July 10, 1909.

Weldon, Wm. A., acting assistant suregon, granted one month's leave of absence from Aug. 15, 1909.

APPOINTMENTS

Dr. Walter R. Brinckerhoff reinstated and appointed assistant director of the leprosy investigation station at Molokai, T. H.

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Dr. Harry T. Hollman appointed an acting assistant surgeon for duty at the leprosy investigation station at Molokai, T. H.

Dr. H. B. Ross appointed an acting assistant surgeon for duty at Del Rio, Texas.

Health Reports

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended July 16, 1909:

SMALLPOX—UNITED STATES

Illinois: Chicago, June 27-July 3, 2 cases; Danville, June 28-July 4, 2 cases; Springfield, May 28-June 11, 2 cases.
Kansas: Kansas City, June 27-July 3, 1 case.
Kentucky: Covington, June 27-July 3, 2 cases; Lexington, 2 cases.
Louisiana: New Orleans, June 27-July 3, 3 cases.
Massachusetts: Lawrence, June 27-July 3, 1 case.
Missouri: St. Louis, June 19-26, 2 cases.
New York: General, May 1-31, 411 cases.
Ohio: Cincinnati, June 26-July 2, 1 case.
Texas: San Antonio, June 27-July 3, 3 cases.
Washington: Spokane, June 19-26, 1 case; Tacoma, June 20-27, 2 cases.
Wisconsin: Appleton, June 19-26, 1 case; Milwaukee, June 20-27, 2 cases.

SMALLPOX—INSULAR

Philippine Islands, Manila, May 22-29, 5 cases, 1 death.

SMALLPOX—FOREIGN

Argentina: Rosario, April 1-30, 1 death.
Brazil: Pernambuco, March 20-May 15, 26 deaths.
Canada: Halifax, June 19-26, 2 cases.
China: Amoy, June 1-5, 3 deaths; Hankau, May 8-15, present; Hongkong, May 15-29, 7 cases, 5 deaths; Shanghai, May 15-June 5, 2 deaths; Tientsin, May 1-8, 1 case, 1 death.
Ceylon: Colombo, May 22-29, 2 cases.
Egypt: Cairo, May 27-June 3, 3 cases, 4 deaths; Suez, May 20-June 17, 42 cases, 3 deaths.
India: Bombay, June 2-8, 10 deaths; Calcutta, May 15-29, 64 deaths; Madras, May 29-June 4, 3 deaths; Rangoon, May 22-29, 2 deaths.
Indo-China: Saigon, May 8-15, 6 cases, 3 deaths.
Italy: General, June 13-20, 14 cases; Naples, 8 cases, 4 deaths; Rome, March 6-13, 1 case, 1 death.
Java: Batavia, May 22-29, 2 cases.
Mexico: Aguascalientes, June 20-27, 1 death; Guadalajara, June 10-17, 1 death; Mexico City, May 15-22, 17 deaths; Monterey, June 13-27, 10 deaths; Veracruz, May 20-June 19, 1 case, 1 death.
Portugal: Lisbon, June 19-26, 3 cases.
Russia: Moscow, June 5-12, 43 cases, 7 deaths; Odessa, May 29-June 19, 7 cases; Riga, June 12-26, 10 cases; St. Petersburg, May 29-June 5, 19 cases, 1 death; Warsaw, April 24-May 8, 6 deaths.
Siam: Bangkok, May 1-28, 1 case, 1 death.
Switzerland: Geneva, June 5-12, 1 case.
Siberia: Vladivostok, May 14-21, 1 case.
Spain: Barcelona, June 7-21, 8 deaths; Valencia, May 29-June 19, 22 cases, 1 death; Vigo, 4 deaths.
Turkey in Europe: Constantinople, June 6-13, 4 deaths.
Turkey in Asia: Bassorah, June 5-12, present.

YELLOW FEVER

Barbados: Parish St. Joseph, June 12-19, 1 case.
Brazil: Manaos, June 5-12, 2 cases; Pernambuco, March 20-May 15, 7 deaths.

CHOLERA—INSULAR

Philippine Islands, Provinces, May 22-29, 14 cases, 5 deaths.

CHOLERA—FOREIGN

India: Bombay, June 2-8, 11 deaths; Calcutta, May 15-29, 117 deaths; Madras, May 29-June 4, 1 death.
Indo-China: Saigon, May 8-15, 1 case.
Russia: Bachmatowo, June 24, 1 case, 1 death; Cronstadt, June 18, 2 cases; Mariechamn, June 23-24, 1 case, 1 death; St. Petersburg, June 18-24, 379 cases, 105 deaths; St. Petersburg Government, June 23-24, 8 cases, 1 death.
Siam: Bangkok, May 1-28, 1 case.

PLAGUE

Chile: Iquique, June 2, 10 cases in the lazaretto.
China: Amoy, June 1-5, 25 deaths; Canton, May 1-29, 110 cases, 85 deaths; Hongkong, May 15-29, 24 cases, 23 deaths; Pollam, May 22-29, 8 cases, 7 deaths; Touchowfu, present; Yin Shan, present.
India: Bombay, June 2-8, 56 deaths; Calcutta, May 15-29, 174 deaths; Rangoon, May 22-29, 13 deaths.
Indo-China: Saigon, May 8-22, 5 cases, 2 deaths.
Japan: Kobe, June 5-12, 1 case, 1 death.
Peru: General, May 5-19, 13 cases, 8 deaths.
Siam: Bangkok, May 1-28, 1 case, 1 death.
Trinidad: June 12-19, 2 cases.

Marriages

LOUIS E. LOVE, M.D., to Miss Rena Hall, both of Dardanelle, Ark., June 30.

JOHN A. MOHLENHOFF, M.D., to Miss Mary E. Seward, at Baltimore, June 29.

ETHEL S. MITCHELL, M.D., and Earl Newton, both of Concord, N. H., June 17.

WILLIAM E. BUIST, M.D., to Miss Ethel Powell, both of Nashville, Tenn., July 4.

CHARLES FLOYD JUMP, M.D., to Miss Genevieve Benepe, both of Bozeman, Mont., July 1.

H. MONTAGUE FRANCIS, M.D., Gilbert, Minn., to Miss Nellie Hazel Ham, of Chicago, June 24.

STANLEY J. BRIGGS, M.D., Sun Prairie, Wis., to Miss Selma Toepfer, of Madison, Wis., July 1.

WALTER B. HOTCHKISS, M.D., to Miss Winifred Godfrey, both of Chehalis, Wash., June 23.

J. GEORGE SMETZER, M.D., Baltimore, to Miss Cora O'Donovan Caldwell, at Baltimore, July 8.

CLYDE MCKAY BECK, M.D., Coahoma, Miss., to Miss Dorothy Brema Coors, of Memphis, Tenn., June 29.

ARTHUR W. SWANN, M.D., New York City, to Miss Susan R. Sedgwick, of Stockbridge, Mass., July 3.

ERRIA D. STUMP, M.D., Charleston, W. Va., to Mrs. Edna Crawford Cunningham, of Cincinnati, July 3.

HAROLD HENDERSON MEANOR, M.D., Coraopolis, Pa., to Miss Mary M. Baker, of Centerville, Pa., June 22.

THOMAS POLLOCK RANNEY, M.D., Chicago, to Miss Bertha Kuehn, of Eveleth, Minn., at Duluth, June 26.

FRANCIS STAPLETON CHAMBERS, M.D., Mount Airy, Philadelphia, to Miss Mary Catherine Schley, at Lake Shore, Adirondacks, N. Y., July 3.

Deaths

Eugene Beach, M.D. Long Island College Hospital, Brooklyn, 1866; a member of the Medical Society of the State of New York; a member of the staff of the Nathan Littauer Hospital, Gloversville, and mayor of that city from 1904 to 1907; for many years a member of the local board of education, and health officer; a member of the State Board of Medical Examiners; died at his home July 7, from cerebral hemorrhage, aged 70.

William Herbert Powers, M.D. Vanderbilt University, Nashville, Tenn., 1900; a member of the American Medical Association; president of the Marion County (Fla.) Medical Association; surgeon to the Marion County Hospital; local surgeon to the Atlantic Coast Line Railroad; a member of the Ocala Board of Health; died at his home, July 4, from tuberculosis, aged 33.

Matthew Stuart Caldwell, M.D. New York University, New York City, 1879; of Far Rockaway, N. Y.; a member of the Medical Society of the State of New York; visiting physician to and president of the staff of St. Joseph's Hospital, Far Rockaway; died in St. Francis' Hospital, the Bronx, July 6, from pleurisy, aged 59.

Richard Cummings Stockton Reed, M.D. Cincinnati College of Medicine and Surgery, 1860; and at one time president of the college; formerly a member of the American Medical Association and one of the best-known practitioners and medical teachers of Cincinnati; died at his home in Stockton, Cincinnati, July 8, aged 84.

Andrew Joseph Dower, M.D. Bellevue Hospital Medical College, New York City, 1878; a member of the American Medical Association; formerly a member of the board of education of Brooklyn; died at his home in South Brooklyn, July 10, from pneumonia, aged 59.

John C. Pannenborg, M.D. University of Louisville (Ky.), 1894; a member of the American Medical Association; and first president of the Lake County (Ind.) Medical Society; organizer of the Hammond Hospital; died at his home in Hammond, July 9, aged 54.

Maurice Lowell Baum, University of California, San Francisco, 1904; of San Francisco; a member of the Medical Society of the State of California; was found dead in a hotel in San Francisco, July 7, from poisoning by chloroform and morphin.

Gerald Paul Garrigan, M.D. College of Physicians and Surgeons, New York City, 1902; of New York City; a member of the American Medical Association; died suddenly in Troy, N. Y., July 4, from heart disease, aged 29.

Philip L. Green, M.D. Western Reserve University, Cleveland, Ohio, 1867; of Vermontville, Mich.; died at the home of his niece in Allentown, Ill., July 7, from cancer of the stomach, aged 72.

Melvin F. Howe, M.D. Hahnemann Medical College, Chicago, 1888; of Lake Charles, La.; died at the home of his brother near Marion, Iowa, July 5, aged 43.

Russell G. Andrews, M.D. Albany (N. Y.) Medical College, 1866, for more than forty years a resident of Navesink, N. J., died at his home, July 6, aged 68.

H. Earle Grissard, M.D. Vanderbilt University, Nashville, Tenn., 1907; died at his home near Goodlettsville, Tenn., July 4, from typhoid fever, aged 26.

James Campbell McClure, M.D. University of Georgetown, D. C., 1899; died at his home in Williamstown, N. J., July 5, from septicemia, aged 35.

James McRuark, M.D. McDowell Medical College, St. Louis, 1852; died at his home in Willisville, Ill., Jan. 20, 1908, from senile debility, aged 84.

Andrew P. Daughters (license, Ind., years of practice, 1897); died at his home in Moore's Hill, Ind., July 7, from cerebral hemorrhage, aged 79.

John S. Holland, M.D. Charity Hospital Medical College, New Orleans, 1875; of Bernham, Texas; died May 10, at Beaumont, Texas, aged 73.

Andrew Easley, M.D. Jefferson Medical College, Philadelphia, 1866; a Confederate veteran; died at his home in South Boston, Va., July 27.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

CALIFORNIA: San Francisco, August 3. Sec., Dr. Charles L. Tisdale, Butler Bldg.

GEORGIA: Regular, Capitol Bldg., Atlanta, August 3-4. Sec., Dr. E. R. Anthony, Griffin.

NEBRASKA: State Capitol, Lincoln, August 11-12. Sec., Dr. E. J. C. Sward, Oakland.

University of Missouri Abandons Clinical Teaching

The announcement of the School of Medicine of the University of Missouri for 1909-10 states that, owing to the limited clinical facilities at Columbia, the teaching of the last two years of the medical course will be temporarily suspended, to be resumed as soon as adequate clinical facilities are available. In the meantime the curriculum of the first two years is being strengthened. Beginning in September, 1910, two years of college work, including courses in physics, chemistry, zoology, English and German, will be required for admission.

State Board Contest in Nebraska

The establishment of a new State Board of Health by the recently elected governor of Nebraska has been contested. Until the matter is settled in the courts all examinations will be conducted by the former board, of which Dr. E. J. C. Sward, Oakland, Nebraska, is secretary. All of the state records and papers will remain in the hands of the old board until the final decision by the Nebraska Supreme Court is rendered.

Delaware June Report

Dr. Henry W. Briggs, secretary of the Medical Council of Delaware, reports the written examinations held at Dover and Wilmington, June 15-17, 1909. The number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 14, of whom 13 passed and 1 failed. One reciprocal license was issued. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Baltimore University	(1900)	77.8
University of Maryland	(1908)	78.3, 79.7
Atlantic Medical College, Baltimore	(1909)	93.4
Albany Medical College	(1909)	78.4
Jefferson Medical College	(1909)	85.8, 91.
Medico-Chirurgical College of Philadelphia	(1909)	82.9
University of Pennsylvania	(1909)	88.6, 89.9, 91.5
Hahnemann Medical College and Hospital, Philadelphia, 90.5; (1909) 89.5.	(1899)	

FAILED

Maryland Medical College	(1907)	72.7

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Bellevue Hospital Medical College	(1894)	New York

Book Notices

MODERN MEDICINE. Edited by William Osler, M.D., Regius Professor of Medicine in Oxford University, England. Assisted by Thomas McCrae, M.D., Associate Professor of Medicine and Clinical Therapeutics in the Johns Hopkins University, Baltimore. Vol. VI. Diseases of the Urinary System—Diseases of the Ductless Glands—Diseases of Obscure Causation—Diseases of the Muscles—Vasomotor and Trophic Disorders—Life Insurance. Cloth. Pp. 799, with illustrations. Price, $6. Philadelphia: Lea & Febiger, 1909.

This volume of "Modern Medicine" is divided into six parts. Part I deals with diseases of the urinary system. An instructive chapter introductory to diseases of the kidneys is contributed by John McCrae of Montreal, who also writes on malformations and circulatory disturbances of the kidneys. Garrod of London contributes two excellent chapters on anomalies of the urinary secretion and on uremia. Herrick of Chicago is the author of the chapters on nephritis (acute, chronic parenchymatous, chronic interstitial) and of the chapter on amyloid disease of the kidney. Thomas R. Brown of Baltimore discusses the bacteriology of the urinary tract, the pyogenic infections of the kidney, ureter and perirenal tissue and tuberculosis of the kidney, and H. H. Young of Baltimore writes on tumors of the kidney, on renal and ureteral calculi, on genitourinary diagnosis. While the treatment of all these subjects merits only praise, the chapters on nephritis deserve special commendation for their clearness and thoroughness and for the careful directions as to treatment.

Part II comprises the diseases of the ductless glands (the adrenals, the thyroid, including the parathyroids, and the pituitary body). It is written by G. Dock of New Orleans, and is a painstaking and complete summary of our knowledge in regard to these structures and their diseases, including exophthalmic goiter, cretinism, myxedema and acromegaly.

Part III, "Diseases of Obscure Causation," includes Hodgkin's disease by Longcope of Philadelphia, arthritis deformans by Thomas McCrae, osteomalacia by Dock, and astasia-abasia and adiposis dolorosa by D. J. McCarthy of Philadelphia—all excellent presentations.

Part IV deals with diseases of the muscles. Myositis, Thomsen's disease and myotonia congenita are discussed by W. R. Steiner of Hartford; myasthenia gravis, paramyoclonus multiplex and periodic paralysis by D. J. McCarthy. Both acquit themselves with credit.

Part V, "Vasomotor and Trophic Disorders," contains chapters on Raynaud's disease, angioneurotic edema, and diffuse scleroderma and erythromelalgia by William Osler, in which his usual grasp of the subject and charm of presentation are fully evident, and also a well-balanced and rich chapter by Charles P. Emerson of the Clifton Springs Sanitarium on achondroplasia, hypertrophic pulmonary osteoarthropathy, Paget's disease, osteogenesis imperfecta, osteopathyrosis, leontiasis ossea, microcephalus and facial hemiatrophy.

Part VI is a valuable and instructive discussion of the medical aspects of life insurance by Charles Lyman Greene of St. Paul.

The volume maintains fully the high standard of its predecessors in the system. The parts on diseases of the urinary system and on diseases of the ductless glands in a way constitute a series of monographs in which the knowledge in these fields is presented by authoritative writers and teachers. Many of the other diseases considered are rare diseases, and consequently barely mentioned in the text-books. In this volume our present knowledge of these diseases is given in detail by authors who in almost every instance are specially qualified to do so by reason of exceptional opportunities for observation and of special study.

STUDIES ON IMMUNITY. By Robert Muir, M.A., M.D., Professor of Pathology, University of Glasgow, in Collaboration with Carl H. Browning, M.D., Alexander R. Ferguson, M.D., and William B. M. Martin, M.B., Ch.B. Cloth. Pp. 216. Price, $3.00. New York: Oxford University Press, 1909.

This volume of 216 pages is a revised reprint of eleven papers originally published in various journals by Muir alone, or by Muir in collaboration with Browning or Martin. They appeared from the years 1903 to 1909 and treated of such subjects as "The Action of Hemolytic Sera," "The Combining

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Properties of Serum-Complements and on Complementoids," "Chemical Combination and Toxic Action as Exemplified in Hemolytic Sera," "The Hemolytic Receptors of the Red Corpuscles," "The Properties of Anti-immune Bodies and Complementoids," "The Action of Complement as Agglutinin," "The Deviation of Complement . . . and Its Relations to the Precipitin Test," "The Combining Properties of Opsonins of Normal Serums," "The Combining Properties of the Opsonin of an Immune Serum," "The Bactericidal Action of Normal Serum," "The Filtration of Serum Complement."

The subject-matter is divided into three parts: Part I: "Properties of the Hemolytic Sera;" Part II: "The Properties of an Anti-Serum to a Serum-Deviation of Complement and Its Relation to the Precipitin Test;" Part III: "The Antibacterial Properties of Serum."

Inasmuch as discoveries which were made subsequent to the publication of some of the papers necessarily modify some of the conclusions expressed, certain addenda have been made for the purpose of correcting the original interpretations. The material has been so modified and arranged as to secure a consecutive presentation.

The volume represents a type of publication which ought to be encouraged. A number of laboratories in this country and abroad have each followed some particular line of investigation for a series of years, and they may safely be considered as experts in their respective lines of work. Consequently, a volume which presents the work which one of them has actually covered, and which treats analytically of the work of others in the same line, should stand as an authoritative treatise on the subject. Such a publication, furthermore, provides a monument to the men and the laboratory concerned in the original work. The "Collected Studies on Immunity" by Ehrlich and his co-workers is a splendid example of this type of publication.

GYNECOLOGIC DIAGNOSIS. By George Winter, O. O. Professor and Director of the Klg. Universitäts Frauenklinik in Königsberg, Prussia, with the Collaboration of Dr. Carl Ruge, of Berlin. Edited by John G. Clark, M.D., Professor of Gynecology, University of Pennsylvania. After Third Revised German Edition. Cloth. Pp. 670, with illustrations. Price, $6.00. Philadelphia: J. B. Lippincott & Co.

This is a translation of a well-known German work, but, unlike many translations, it would be difficult to distinguish it from an original work in English. This edition has been entirely rewritten and the text has been brought up to date. The number of illustrations of the original is almost doubled and many old drawings have been replaced by photogravures. The work is arranged in three parts, comprising general diagnosis, specific diagnosis and analytic diagnosis. The first part deals with the modern methods of diagnosis, external and internal, including the methods of using vaginal and rectal specula, cystoscopy, bacteriologic methods and radiography. Obsolete methods have been excluded. The second part, on specific diagnosis, is probably the most important of the three. It starts with the description of normal findings and then takes up deviations, abnormalities and diseased conditions. The third part deals with the methods of arriving at diagnosis by reasoning from the history given by the patient and by exclusion. In this part of the book are discussed the various disorders of menstruation, hemorrhage, sterility, abdominal tumors, etc. This valuable book is to be commended.

GOLDEN RULES OF DIETETICS. By A. L. Benedict, A.M., M.D., Buffalo. Author of Practical Dietetics. Cloth. Pp. 407. Price, $3.00. St. Louis: C. V. Mosby, 1908.

The importance of the science and art of dietetics is coming to be more generally recognized by the medical profession and a knowledge of at least the fundamentals of the science is essential to the intelligent practice of medicine. Many of the books that have appeared on the subject are open to one of two criticisms: they are either so exhaustive as to repel the general practitioner, or, in an attempt to be succinct, they are superficial to the point of uselessness. Dr. Benedict seems successfully to have avoided both extremes and if for no other reason this book is a welcome addition to the literature of dietetics. While the subject has been handled conservatively the author is evidently alive to the advances that have been made in recent years in the science of feeding. The eminently sane tone that pervades the work is noticeably present in the chapter dealing with diet in diabetes. In the first part of the book are chapters on physiologic chemistry, standard diet in health, the preparation and composition of food, and Dr. Benedict's condensation of Bryant and Atwater's analysis of foodstuffs. The last half of the book is given over to the consideration of diet in special pathologic conditions.

JAHRESBERICHT ÜBER DIE FORTSCHRITTE DER INNEREN MEDIZIN IM IN- UND AUSLANDE. Redaktion: Dr. Schreiber, in Magdeburg. Dr. Rigler in Leipzig. Bericht über die Jahre 1902 und 1903. I. Band. Paper. Pp. 776. Leipzig: Verlag von Dr. Werner Klinkhardt, 1909.

This volume presents a complete review of the world's literature on internal medicine for the year 1902 and 1903. Owing to its late appearance it naturally will serve chiefly as a source of reference to authors. This defect is to be partly made good in the publication of subsequent volumes which will follow, so that the literature of 1908 will be reviewed in a short time and that of 1904 and 1905 also before the end of the year. Next year the volumes for 1906 and 1907 and 1909 will be published, thus bringing the series up to date.

Miscellany

Drugs of the Olden Time

The general belief is that almost all of the substances used in old-time medicine were practically useless and that their employment was due to tradition, supported by the fact that most diseases and injuries have a tendency to recovery of themselves. Yet it is surprising how much of the old empirical medicine has survived in the practice and is confirmed by the theory of the present day. Sir William R. Gowers, in his second series of lectures on the nervous system ("Subjective Sensations of Sight and Sound, Abiotrophy and Other Lectures," Philadelphia, Blakiston, 1904) has a very striking passage on this subject:

"It is strange, indeed, to note how far back goes the use of the drugs on which we most rely. Most of them can be traced far back into the distant past until they are lost in the blue mists which shroud alike the hills of Greece and the deserts of Arabia, or to the time when the world learned its wisdom from the land where now the symbols of man's thought lie deep beneath the desert sand or stand silent in the cold moonlight of a long dead past. We smile at the popular herbal remedies. But it is to these that we owe the majority of our most useful drugs. I can not conceive a therapeutist surveying a list of the chief drugs on which we depend in our daily work—and do not depend in vain—without a sense of wonder and perhaps of humiliation. We disinfect our rooms with burning sulphur; and so men did before the time of Homer. We purge sometimes with rhubarb, especially when some subsequent astringent influence is desirable, and so did the old Arabians for the same special reason. The value of castor oil in its chief use was familiar, probably for ages, to the natives of the East and of the West Indies before it was made known in Europe by a physician from Antigua one hundred and fifty years ago. Aloes was employed in the same way long before the time of Dioscorides and Pliny. The knowledge of the influence of ergot in parturition we owe to the peasants of Germany, and the use of male-fern for tapeworm goes back to the old Greeks and Romans. The employment of mercury in syphilis by inunction and fumigation, which our nineteenth century therapeutists regard with such satisfaction, seems to go back to the time of the crusades, and it is said that its use can be traced in Malabar as far back as the ninth century. Podophyllum as a purgative we owe to the North American Indians."

John Russell's "Book of Nurture," a Harleian manuscript, which dates from the fifte nth century, and which was first printed for the Early English Text Society by Dr. Furnivall about forty years ago in a collection of hitherto unedited texts called "The Babees' Book" (recently republished by Duffield, New York), has an account of some of the herbs that were commonly used at that time for the treat-

ment of injuries and ailments of various kinds. As here suggested, they were used in a bath, but they were evidently the ordinary simples of the time. Among them fennel, pellitory, which contains nitrate of potash, and camomile are still used as home remedies. Centaury, so named from the legend that by a decoction of it Chiron, the centaur, was cured, is a plant of the gentian family, which is still considered valuable as a bitter. Heyriff is said to be still used in France as an internal remedy for epilepsy. Herb-bennett—a name derived from the term "herba benedicta," or the blessed herb—was supposed to be particularly efficacious in driving away the devil. This was very probably one of the forms of valerian; we still use it in driving out devils, though we often are not very successful because the blue devils of hysteria do not yield readily. As external applications the common daisy and mallow from the marshmallow were used. The main virtue of these undoubtedly lay in the fact that they were thoroughly boiled before being applied, and therefore were probably aseptic. As they made a coating over the wound, they served—and this was especially true of the marshmallow—as a protective almost as efficient as the modern collodion.

Apparently, they had many "blood purifiers" in the old days which we still have with us, their efficacy being due in part to suggestion and in part to their laxative effect. Danewort, a dwarf elder, for instance, was traditionally thought to have sprung up by a sort of spontaneous generation wherever there had been an encounter between the English and the Danes. The mixture of these two virile bloods was supposed to make for wonderful blood-purifying properties in the herb that resulted; it is still employed sometimes because of its purgative properties. Flaxseed was employed for its supposed power over coughs; flaxseed tea was usually taken three cupfuls a day. The most efficient cough remedy that we have even at the present day when coughs are hard, is an abundance of fluid. Besides, flaxseed tea was a mucilage and all of the mucilages are valuable for their protective property for the throat irritated by the explosion of coughing. Evidently the drugs of our forefathers deserve less scorn than we have given them.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, POSTGRADUATE WORK, CONTRACT PRACTICE, INSURANCE FEES, LEGISLATION, ETC.

DIVISION OF FEE AND COMMISSIONS TO PHYSICIANS *

AUGUSTUS A. ESHNER, M.D.
PHILADELPHIA

Articles of commerce pass, as a rule, through several hands before they reach the consumer. A certain profit or commission properly accrues to each of those that effect a sale. The price of such articles varies in accordance with the laws of political economy, being affected especially by the cost of production and of marketing, as well as by conditions of supply and demand. Occasionally, for reasons of expediency, goods are sold at a loss; but rarely are they given away gratuitously.

The profession of medicine, while it has certain business aspects, differs radically from the various forms of commercial and industrial activity. It is, however, neither a business nor a trade. The medical man, like his neighbors in the community, must pay taxes and rent, and he must provide the necessities of life for himself and his family, and to meet these obligations he must have a definite source of income. From esthetic considerations his expenses are greater than those of laymen occupying a corresponding social position. His work requires his personal attention, and he can not readily delegate it to others as can the business man; nor can he, like the manufacturer, multiply the product of his activity through the agency of machinery and subordinates. His opportunities for relaxation, diversion and entertainment are restricted by the demands that may be made on his time at any hour of the day or night, and he can indulge in protracted holidays only at the sacrifice of income and practice.

Throughout his entire professional career the physician renders without pecuniary compensation a large measure of service in hospital and dispensary, in his office and in the homes of the poor. In addition he does a not inconsiderable amount of work for which he fails to receive the material reward to which he is morally and lawfully entitled.

Physicians' fees necessarily differ in accordance with the nature of, and the time required in, a given case on the one hand and the skill and experience of the individual practitioner on the other hand. In every case the service, wholly apart from considerations of gratitude or other emotional factor, should be adequately compensated. The situation is in no wise changed if the exigencies of the case demand the reference or the transfer of the patient to a second physician or the calling of such a physician in consultation, with a view to clearing up an obscure diagnosis or formulating the prognosis or obtaining aid and suggestion in treatment, medical, surgical or otherwise. In each instance the physician gives his best skill and judgment in the interest and for the welfare of the patient, and the latter in turn should be ready and willing to compensate adequately each and all of those on whose service he makes demand.

From the foregoing considerations it does not seem that there can be any fair or honorable division of the physician's fee. For one physician to make such division with another or to pay a commission, would mean the alternative of surrendering a part of the compensation to which the first physician is fully and deservedly entitled for the service rendered by him or the making of an excessive charge against the patient and out of which the second physician receives his remuneration. Such a course would be compromising to both parties to the transaction and it could result only in the demoralization of both donor and recipient and the eventual commercialization of medicine. The physician who expects a commission or a division of the fee will be tempted to select that consultant or operator or specialist who yields the largest pecuniary return, and who for this reason may charge the largest fee, or at times to advise consultation or operation when it is not actually demanded by the requirements of the case, while such a keen rivalry might develop among physicians who divide fees or pay commissions that one outbids the other in the desire to secure new business and more fees. Out of this situation no advantage could redound to the benefit of the patient.

What has been said with respect to the relations among physicians applies equally to druggists, instrument-makers and other tradesmen. The payment and acceptance of commissions for articles purchased by patients merely puts an added burden on the latter, entirely without their knowledge and consent.

* Read before the American Academy of Medicine, June 7, 1909.

Society Proceedings

STATE MEDICAL SOCIETY OF WISCONSIN

Sixty-third Annual Meeting, held at Madison, June 30-July 2, 1909

The President, DR. GILBERT E. SEAMAN, Milwaukee, in the Chair

Proceedings of the House of Delegates

The officers elected were given in THE JOURNAL, July 17, page 215. Milwaukee was selected as the meeting place for 1910.

A vote of thanks and appreciation was extended to Dr. E. L. Boothby, of Hammond, for his past work in behalf of the society.

Dr. O. T. Hougen of Grand Rapids was elected councilor for the Ninth District and Dr. R. U. Cairs of River Falls councilor for the Tenth District. The resignation of Dr. C. J. Coombs of Oshkosh, Sixth District, was accepted, and Dr. H. W. Abraham of Appleton was elected to succeed him.

The date of the ending of the fiscal year of the association was changed to April 15.

The president was instructed to appoint three delegates to represent the society at the United States Pharmacopeial Convention of 1910.

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The consideration of the resolution passed by the American Medical Association recommending that advertisements of medical preparations be limited to those approved by the Council on Pharmacy and Chemistry was postponed.

The president was authorized to appoint a "Committee on History of Medicine in Wisconsin," to collect data on the early history of physicians and medicine in Wisconsin. He appointed Dr. W. S. Miller of the University of Wisconsin, and Dr. G. P. Barth of Milwaukee.

PROPOSED PURCHASE OF WISCONSIN MEDICAL JOURNAL

Dr. C. R. Bardeen, chairman of the committee appointed to consider the offer of the Wisconsin Medical Journal Company to transfer its entire property to the society, presented the report of the committee as follows:

WHEREAS, We recognize that the establishment and maintenance of the *Wisconsin Medical Journal* has been of great benefit to the medical profession of the state, and

WHEREAS, The proprietors of the *Journal*, after conducting it for five years, now offer it to the State Medical Society of Wisconsin on what appears to your committee to be unusually generous terms, and

WHEREAS, The present proprietors of the *Journal* are unwilling longer to assume these responsibilities and believe that it would be to the benefit of the state society to own its own journal.

The committee respectfully recommends that a special committee be appointed to consider more at length the feasibility and details of such change of management and to report the same to the council with power to act.

The report was unanimously adopted and the president was instructed to appoint a special committee of five delegates for the purposes named, with power to act.

A motion was unanimously carried that it was the sense of the house that the society should take over the ownership of the *Wisconsin Medical Journal* if in the judgment of the committee such action is deemed feasible. It was also voted that society again contract for the publication of the proceedings on the same terms as last year and for such time as may be necessary to complete the proposed transfer of the ownership of the *Journal*.

REPORT OF DELEGATES TO CONFERENCE ON MEDICAL EDUCATION OF AMERICAN MEDICAL ASSOCIATION

The report of delegates to the Conference on Medical Educa- of the A. M. A. showed that the meeting was well attended. The report showed a marked tendency to lessen the number of medical schools in operation; that the movement for higher entrance requirements is well under way, and that ideal courses were reported by the committee on curriculum designed to encourage uniformity in the hours devoted to the various branches of study in medical schools. The report was unanimously adopted as read.

REPORT OF THE COMMITTEE ON PREVENTION OF TUBERCULOSIS

DR. A. C. HARPER, Madison, presented this report detailing the work done in Wisconsin along the lines of the prevention of tuberculosis. The state organization is endeavoring to organize local associations to act in conjunction with the state association to spread knowledge concerning tuberculosis and its prevention; the report suggests that the state association and state committee on prevention and cure of tuberculosis work together so that no division of labor and no cause for dissention will arise. The report was adopted as presented.

THE REPORT OF THE COMMITTEE ON PUBLIC POLICY AND LEGISLATION

DR. A. J. PATEK, Milwaukee, presented this report. It showed that the following bills were killed: A bill for the licensing of chiropractics; a bill creating a board for the examination and licensing of opticians; a bill to amend the present laws governing the appointment and organization of the state board of medical examiners. The committee also reported the passage of a law providing for the registration and licensing of midwives, the bill being the best law on the subject in force in any state of the Union. The report was unanimously adopted.

REPORT OF DELEGATE TO THE NATIONAL LEGISLATIVE COUNCIL

DR. BYRON M. CAPLES, Waukesha, presented this report, which showed that the matters taken up there embraced uniform state laws on vital statistics; the matter of the revision of the tariff in so far as it affected the medical profession; a discussion of the enforcement of pure food acts; a recommendation that there be a central body to formulate a single law applying to each state in the matter of the regulation of the practice of medicine; that the matter of expert medical testimony was referred to a special committee, to report at the next meeting of the national committee; that a hearing was arranged before the House Committee on Interstate and Foreign Commerce with reference to the Public Health Bill; that the matter was presented by Dr. Reed, who made the suggestion that there be established a bureau of health to deal with matters of public health. The report was unanimously adopted.

Address of Welcome

HON. JOHN A. AYLWARD, Madison, stated that the people of Madison were proud of their own physicians, both because of their high rank in the profession and because of their character as men and citizens; that Madison welcomed the convention because it believed that the men in the medical profession in their own communities were doing grand work; that the doctors and lawyers were doing more work for the state than all other classes and professions together.

Address of Welcome on Behalf of the University of Wisconsin

PRESIDENT C. R. VAN HISE, University of Wisconsin, stated that his appreciation of the work of the State Medical Society of Wisconsin had steadily grown through recent years, as his knowledge had extended of their work in the state. He stated that traditionally the physician of the town was one with the clergyman and the lawyer; that in the past, until comparatively recently, the work of the physician had been regarded mainly as personal, in the cure of disease, but that in the past 25 years, and especially during the past decade, there had been a great transformation; that the physician had realized that his function included not only the cure of disease, but the prevention of infectious and contagious diseases in his community, and prevention of their spread once they had gained a foothold, and that he believed that in the future this would be the most important duty of the physician. It formerly was said, in some cases at least, that the practice of medicine was a mercenary profession; this charge was never true in a general way, the physician who added to his duties of curing the sick the duty of an active interest in the welfare and the health of his community was certainly above any such charge. He spoke of the great responsibility resting on the physician by virtue of his knowledge of the possibilities of eliminating infectious and contagious diseases; that in a democratic community the enforcement of such laws as could be framed to accomplish this result would be impossible, but that by education and carrying out to the people the knowledge which scientific medicine had gained during the past 25 years this could be accomplished. On each physician was imposed the duty of becoming a center of education in reference to sanitation and hygiene and the elimination of infectious and contagious diseases. This duty was being promoted by the State Medical Society.

The University of Wisconsin would cooperate in this work, but owing to the small fund at hand, it could do comparatively little without the help of the medical profession. It was as a force of men realizing their great public responsibility that he especially welcomed the society to the university. The laboratories of the university were open for inspection and examination throughout the meeting, and assistance was glady offered.

The response to the addresses of welcome was fittingly made by President G. E. Seaman.

President's Address: Medicine in Wisconsin

DR. G. E. SEAMAN, Milwaukee: The State of Wisconsin, through its university, is doing much for medicine, and the establishment five years ago of the State Hygienic Laboratory was a long step in advance toward the more effective study of preventable diseases. There is the greatest necessity for the wide dissemination of the plain facts of preventive medicine and there should be no mystery in medical science.

Preventive medicine is to-day the strongest current in medical progress. The medical department of the University of Wisconsin should seriously consider the development of a school of public health and sanitary science to fit men for public health positions. No such school is now in existence in this country, although two universities have made a start in this direction; and many foreign countries have made great progress along these lines. The recent reorganization of the State Medical Society of Wisconsin has been distinctly beneficial, there being distinct gains in membership and in quality of work, but it would be well to eliminate the district society and devote our energy to the upbuilding of the county society, and county secretaries should be *ex officio* members of the House of Delegates. The establishment of a committee on medical defense has proved an excellent thing.

Eddyism, Dowieism, the new thought, the Emmanuel movement and the holy jumpers owing their temporary success to the worship of the novel and the mystic and the glamour of strong personality, will not seriously affect rational medicine, founded as it is on the solid rock of scientific experimentation and demonstration. But psychotherapy and every other variety of therapy is the particular property of the skilled medical man, and physicians should make use of the potent influence of suggestion when indicated in their daily practice. There is no occasion for quarrel with any pseudo-religio-medical cult or the worshippers of mawkish sentimentality as exhibited by the antivivisectionists and their kind, for the achievements of rational medicine stand to-day as an imperishable monument to the genius and devotion of her followers.

(To be continued)

AMERICAN NEUROLOGICAL ASSOCIATION

Thirty-fifth Annual Meeting, held in New York, May 27-29, 1909
(Continued from page 228)

Type and Distribution of Sensory Disturbances Following Cerebral Lesions

DR. CARL D. CAMP, Ann Arbor, Mich.: Dissociation of sensation frequently follows cerebral lesions. The type of dissociation is not constant, but probably depends on the location of the lesion. The disturbances of sensation are usually confined to one side of the body, but some cases apparently show that there is rerepresentation in the cerebral cortex of the sensory distribution of spinal segments. A case which I have observed showed marked dissociation of sensation and strongly suggested spinal segmental sensory representation in the brain.

Inversion and Interlacing of the Color Fields an Early Symptom of Brain Tumor

DR. HARVEY CUSHING: This report is a preliminary one and is based on observations made in conjunction with Dr. James Bordley, Jr. The history of most brain tumors extends over a period of years rather than months. It is perhaps not surprising to find that almost every patient brought for operation after the diagnosis of brain tumor has been finally certified by the often long-delayed ophthalmoscopic changes, has at an early stage of the trouble been regarded as hysterical or the subject of some psychoneurosis. Following Charcot, an impression still holds sway that more or less contraction of the field for form with partial or complete color reversal (dyschromatopsia) is the great "essential sign of hysteria." These alterations of the visual fields are no less characteristic of brain tumors. We have found no definite relationship between the contraction of the field for form and that of the color field. Some patients have shown the typical hysterical concentric contraction with color reversal, but in many of them there has been a prompt return to the normal relations after a simple decompression. Others have shown peripheral limitations greater in fields for form than in color fields, the red being less affected than the blue. There have been other cases in which contraction for colors and form go hand in hand, though the blue is usually much more affected than the red field. The prominent feature of most of our charts is not so much the preservation of the red field as the alteration of the blue. In several instances there has been a total achromatopsia and a more or less definite hemiachromatopsia for blue alone. The changes in the color fields often foretell alterations that are to take place subsequently in the fields for form. Thus in a few instances quadrantal defects in the color fields have been followed by corresponding form changes; in others hemiachromatopsia has been followed later by complete homonymous hemianopsia. The process seems to be one related in some way to increased intracranial tension, the relief of which usually causes an early subsidence of the dyschromatopsia. These visual disturbances do not seem to be dependent upon neuroretinal edema, since in a number of patients they preceded any appreciable ophthalmoscopic changes.

DISCUSSION

DR. M. ALLEN STARR, New York: Has the interlacing of the color fields been observed in ordinary choked disk following nephritis?

DR. C. K. MILLS, Philadelphia: For many years I have noticed the occurrence of changes in the visual field similar to those to which Dr. Cushing has called attention in cases of brain tumor, and not only in cases of brain tumor, but in a few cases of other organic lesion. In 1898 Dr. Keen operated on a parietal tumor, the report of which was presented to the American Neurological Association in the same year or the year following, in which I contended for the existence of a brain tumor in the parietal lobe, but some of the consultants believed that the case was hysterical, one of the reasons for this belief being the observation of the ophthalmologist, Dr. Risley, that the reversals in the field and the contractions in the visual field were similar to those observed in hysteria, and a note of this fact was made in the report which was published years ago. In other cases this has been observed. Dr. de Schweinitz on two or three occasions presented papers on hysteria in which the matter was referred to Dr. Cushing indicates his belief that these changes should be ranked as among the general symptoms of brain tumor. I note that most of the cases were of growths in a region where one would naturally expect them to be, so that we might regard the symptom as in part at least a focal symptom. It is a matter of some importance whether the symptom is to be regarded as a focal or as a general symptom. Tumors and other lesions situated in the parieto-occipital and temporal regions are very likely, in my experience, to produce conditions similar to those to which Dr. Cushing has called attention, although I have never gone into the subject so fully as has Dr. Cushing.

DR. B. SACHS, New York: In the five or six weeks since Dr. Cushing has called my attention to his work in color fields I have had five cases of intracranial tumor in which it was put to a careful test. The eye examinations were made by ophthalmologists who had not been told of my desire to test Dr. Cushing's work, but in every case what Dr. Cushing claimed was found. In two cases the tumor was found at operation. This work of Cushing's will in all probability have to be taken as one of the general symptoms of brain tumor and not a symptom which must necessarily have to do with the visual tract. The importance of this symptom can not be overestimated, and, as it appears long before other symptoms, we should be doubly grateful for this contribution.

DR. GEORGE L. WALTON, Boston: The importance of this communication can hardly be overestimated as offering practical aid in the diagnosis of organic from so-called functional cases. I have not studied the reversal and interlacing of fields in brain tumor, but I have seen long-standing hemianopsia with achromatopsia with the field for form preserved in a case of tumor of the pituitary body. The visual symptoms long preceded those suggesting tumor and appeared many years before changes discoverable by the ophthalmoscope. They had been mistaken for an unusual form of ocular disturbance accompanying migraine, for the patient had been subject to recurring one-sided headaches for a long term of years.

DR. JAMES J. PUTNAM, Boston: The peculiar distribution of disturbances in cerebral lesions may in reality be due not to the anatomic lesion but to an attempt of the organism to reestablish equilibrium which has been disturbed by lowering of function due to the lesion.

DR. MORTON PRINCE, Boston: Did the amblyopia which existed in one of the cases appear before the optic neuritis developed?

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DR. HARVEY CUSHING: There was a very high grade of choked disk.

DR. MORTON PRINCE: Was the amblyopia always accompanied by choked disk?

DR. HARVEY CUSHING: I have had only case of amblyopia, therefore, I can not generalize on it.

DR. J. K. MITCHELL, Philadelphia: In the course of examination of a great many cases, most of which were apparently hysterical, I found in at least two or three patients with spinal injury which had resulted from very small trauma, reversal and retraction of the color fields. None of them were patients who could have been said at the time to have hysteria, and the discovery was made accidentally. There were some cases of locomotor ataxia in which it appeared.

DR. G. E. DE SCHWEINITZ, Philadelphia: It is suggestive in every way. It is a well-known fact that concentric contraction of color field and color lines occurs in a number of conditions other than hysteria. In Charcot's clinic the same condition of affairs occurs in lesions of the internal capsule and in brain tumor of which a number of examples have been quoted, and it is a well-known symptom in certain toxemias, especially those the result of alcohol, of lead, probably of tobacco, and is most remarkably noticeable in cases of poisoning by dimethyl-benzoate. In those cases the color field exactly represents the hysterical color fields in Monod's book. This seems interesting because it seems to confirm that in many of these cases there must be great alteration in the intracranial pressure, particularly in the lead and alcohol. Another interesting fact brought out is in reference to the blue-blindness which Dr. Cushing has observed in many of these cases. That is, of course, a thing which might and does take place under various retinal conditions. This confirms Cushing's views in regard to the production of albuminuric retinitis which he has relieved by the decompression operation. The inversion of the color fields is due to intracranial pressure under such circumstances. It is a mistake to think that hysteria alone is capable of producing this peculiar condition when we know that it can be produced by the conditions recited.

DR. HARVEY CUSHING: I wish first of all to give credit where it is due. Dr. Bordley discovered this constancy of color inversion, or interlacing of the color fields, in brain tumors. Dr. de Schweinitz has answered Dr. Starr's question. My view is that this condition is in some way associated with tension. Perhaps the albuminuric retinitis is partially due to cerebral edema, and one would expect to find these same changes in association with so-called albuminuric retinitis. We have not had a sufficient number of cases to speak dogmatically about it. I am sorry that I was not aware that Dr. Mills had worked this point out, as it would have saved a great deal of work. I am interested in what Dr. Mills has said as to whether this should be regarded as a general or a focal symptom and believe he has said just what we would all say about it, that is, that it appears to be a general symptom, but in certain cases there are focal signs which are suggestive of the nature of the lesion.

Distinction Between the Psychoneuroses Not Always Necessary

DR. G. L. WALTON, Boston: Much confusion exists regarding the classification of cases presenting nervous symptoms without known organic basis. In well-marked cases, there is little difficulty. Such symptoms as aphonia and anesthesia indicate hysteria; flight of ideas and pressure of activity, alternating with retardation of thought and profound depression are easily recognized as meaning manic-depressive insanity, and so with all well-marked cases. But there is a large class of patients showing symptoms which are common to manic-depressive insanity, hysteria, hypochondria and neurasthenia. Much unnecessary effort is made to place each of these cases under one or the other category. The text-books attempt, without success, to make clear the distinction between mild forms of these disorders. It should suffice to class these mild cases simply under the term psychoneurosis unless definite symptoms develop. Nothing is lost by including under this term most of the cases classed under neurasthenia, a misleading term, since it implies an asthenic condition not always present, whereas psychoneurosis indicates the essential state of all patients now included under neurasthenia.

DISCUSSION

DR. MORTON PRINCE, Boston: It would be going back forty years in time to accept this classification. What we want to do is to differentiate, to acquire precision of knowledge and not to dump everything together and say that we are dealing with only substantially the same thing.

DR. PHILIP COOMBS KNAPP, Boston: There are many cases in which it is difficult to make a diagnosis. It is difficult sometimes to make a diagnosis between general paralysis and neurasthenia, between tabes and neuritis, between brain tumor and an ordinary epilepsy, but it does not seem that, because the diagnosis is difficult, we should throw up the sponge entirely and say there is no difference at all. There are certain well-defined types of mental and nervous disease; there are many borderland cases, but the more exact and the more thorough our study the better we can differentiate between them and the better our treatment can be.

DR. ADOLF MEYER, New York City: We know that there is more than one group of facts to be interpreted in almost every case that we have to handle. The error arises from the habit of trying to classify our cases as patients. If we then in the actual performance of grouping our cases throw an individual into one group, although he has something else in another group, we simply falsify our conceptions and do injustice to the actual work that we are doing.

DR. J. J. PUTNAM, Boston: The diagnosis of psychoneuroses has been used a good deal more in the Massachusetts General Hospital than in other clinics. My tendency of late years has been to endeavor to differentiate a great deal more between the different cases than formerly. I have used the term psychoneurosis simply as a convenient heading in hospital classification, realizing that if I took up these cases again to study them I would analyze them a great deal further. We should recognize that we have to deal with patients, not cases, and with sick people who are sick at the same time in various ways.

DR. C. B. BURR, Flint, Mich.: If you had the patient alone to deal with it might do to act on Dr. Walton's suggestion, but, unfortunately, you have his friends to deal with. A patient comes from another doctor, a friend. After a consultation you say the patient has a psychoneurosis. Presently you are going to hear from the patient's friends, "Why, Dr. ——— said she had hysteria." You try to compromise; you tell them you are in accord with the former physician and endeavor to explain, and by and by you mix the ball up and what you have to say will fall flat. It is better to arrive at a conclusion, even if you differ from everybody else, than to come to none at all.

DR. J. W. PUTNAM, Buffalo, N. Y.: It has always seemed to me that the great desire to find what kind of disease the patient has may be carried to an extreme, and the tendency should also be to find out what kind of a patient is controlled by the disease. The same symptoms occurring in one individual lead to much more serious disaster than the same group of symptoms occurring in another patient.

DR. G. L. WALTON: My plan is not for merging such diseases as brain tumor and neurasthenia but rather to reserve for such really important questions one effort at classification. My position is not like that of collecting the diseases of the various viscera under one head but rather analogous to a protest against subclassifying those cases of heart disease without organic basis, whose symptoms are common to all, such as palpitation, anxiety, etc.

(To be continued)

MASSACHUSETTS MEDICAL SOCIETY

One Hundred and Twentieth Annual Meeting, held at Boston, June 15-16, 1909

(Concluded from page 226)

Discussion on Gastric Surgery

DR. JOHN C. MUNRO, Boston: Judging from my experience, alcohol has nothing to do with the frequency of duodenal ulcer. Some ulcers heal themselves, but it is not wise to depend on medical treatment, as this is distinctly a surgical disease. It is difficult to differentiate a duodenal from a gastric ulcer, as their situations are so near each other. One form

may be present and yet be hidden by symptoms of the other. A duodenal ulcer may creep up to the pylorus, and it is this form which often becomes carcinomatous. Pain is a most valuable symptom and has no special relation to the ingestion of food. Pain at 11 and 4 o'clock and at midnight and relieved by food is a useful symptom. We can not make a diagnosis of location of ulcer by symptoms, but surgery must be called into play for final diagnosis. There is no objection to operating on chronic ulcer. Complications are so rare that they may be disregarded. Speaking of areas of hyperalgesia in the diagnosis of abdominal diseases, I shall use the method for trial in some future cases. For gastric dilatation the treatment is stomach washing. The Mayos advise their internes to substitute the stomach tube for the stethoscope for a neck instrument. Dr. Maury's work on duodenal secretions I consider valuable data in these stomach and duodenal cases.

DR. FARRAR COBB, Boston: Acute inflammation of the kidney resembles at times appendicitis or cholecystitis, and often can be diagnosed by operation only. Ruptured tubal pregnancy symptoms are not classical in my experience, and often simulate appendicitis, gallstones or perforation.

DR. JOSHUA C. HUBBARD, Boston: In dilatation of the stomach we have a derangement of the nerves of the stomach. The real condition is a motor insufficiency of the stomach, and we should recognize it. The treatment may be preventive and corrective. It is evident that the preparation of the patient is of little moment in this lesion, since it is not seen in emergency surgery. It is no hardship on a patient to pass a stomach tube, when necessary. It may be done with the patient reclining and if any severe symptoms exist previously the patient feels repaid for the effort by the relief obtained. Shock is not caused by this procedure. The prognosis of dilatation of the stomach untreated is bad, but treated promptly recoveries are usually 100 per cent. Diagnosis is not difficult. I think that in general the use of the stomach tube is valuable in the after-treatment of surgical affections. All food should be stopped in suspicious cases and the tube used early and often.

DR. ROBERT B. GREENOUGH, Boston: I consider the constant overflowing of the stomach an important symptom of dilated stomach following surgical procedures. It can and does follow the application of a plaster packet.

DR. ELLIOTT P. JOSLIN, Boston: I have seen two cases following applications of plaster jackets, and they were successfully treated by the tube. Usually any food given following an operation is liquid, and it returns through the tube. In the coma of diabetes one should not give too much water with the alkali by mouth, as it tends to cause acute dilatation. It is wiser to give it by rectum. In "stepping up" the food, following laparotomy, it is wiser to give, following liquids, a more concentrated liquid than to give more of the liquid. This may be classed as prophylactic treatment. In the diagnosis of duodenal ulcer we can not rely on one symptom. I fear we are behind the times in this particular.

DR. FRANKLIN W. WHITE, Boston: I found in a series of ulcers that two-thirds were gastric and one-third duodenal, and think it very difficult to differentiate the location of the two kinds.

The Shattuck Lecture: The Widening Sphere of Medicine

DR. EDWARD W. TAYLOR, Boston: Medical practice was narrow a few years ago, but now it is broad. It is now preventative. There is less of the individual physician and more of the medical profession as a body. The work of the medical school is now more to aid the physicians as a whole than singly. This has reached a point when we ask ourselves whether the country towns are receiving proper physician's attendance. No one influence has been more prominent than the development of the specialties. It is said that specialties narrow. But still it is a platitude that all advances now must come through advances in special lines. Yet there is no antagonism between general practitioners and specialists. The former depend on the work of the latter. In reality, the pursuit of specialism is broadening due to the necessity of a knowledge of so many related subjects. We never may return to old superficial methods. In the world of men the physician is no longer placed on a pedestal, all his treatment is scrutinized. The definite benefit of modern medicine is its freedom from mysticism. People wish reasons for occurrences. Exactness is necessary, and the public has increasing interest in medical affairs. The public lectures on medical subjects held in Philadelphia and Boston should be continued. The public should know that we can not at present prevent pneumonia but can prevent tuberculosis. As an evidence of the interest in medical affairs by the public I would mention the widespread circulation of a recent work, "Why Worry," by a Boston neurologist. We must have the cooperation of the public in this preventative propaganda, and we need endowment. The social service is a prominent example of the widening sphere of medicine. The subject of hygiene and preventive medicine had few adherents in the past, but the number is increasing. It has been said that medicine requires a certain kind of mental makeup. It is plain that the attitude of the student is much influenced by that of the teacher. There are not enough students to supply the demand at present, and it is due to lack of attractive features in the practice of medicine. How may things be readjusted? Not by lowering the standard. The principle is to raise the standard, but we must also broaden it. I believe we should not refuse to admit men who are capable and yet who have not followed a certain prescribed course. An elective system modified to suit all conditions must be possible, if we are to act correctly. The great need of the future is recognition of the many diverse paths which may be followed in medicine.

The Diagnosis, Prevalence and Prevention of Rabies

DR. LANGDON FROTHINGHAM, Boston: Three methods of diagnosis are commonly used, inoculation of animals, isolation of the Negri bodies in the brain of the animal suspected, and the lesions in the ganglia. The Negri bodies vary in size considerably but with proper staining are very satisfactory. The technic is so perfected that in less than two hours a positive diagnosis is possible. The period of incubation has wide variation, and in some recorded cases varied from seven to ninety-one days. I strongly advise general muzzling and quarantine. Rabies would be immediately stamped out by these means.

DISCUSSION

DR. CHAS. H. WITHINGTON, Boston: The death rate of all cases untreated is 16 per cent. of those bitten. In Paris, with Pasteur treatment, a report of but 1 per cent. mortality is recorded. The last few days of life in a case is an example of terrible agony. In one case ether was used but had no effect on the convulsions. The mortality, when the disease is fully developed, is 100 per cent.

The Blood in Surgery

DR. JAMES G. MUMFORD, Boston: There are three methods of investigation of the blood. First, in the laboratory; second, the technical method which carries findings to bedside, and, third, the literary investigation, which adds its quota. The idea of transfusion is as old as the science of medicine, but we have perfected it. It is known that the blood does not tolerate large quantities of normal saline solution. Other solutions have been tried, as glycerin solution, milk, etc., but since 1890 saline infusion has been the usual procedure. One value of infusion is the flushing out of small capillaries. It has been asserted that the bulk only is necessary and that real blood is not necessary. But of late we have had evidence that flooding the system with salt solution is injurious. Attention to detail is the *sine qua non* in this transfusion work. It has now come to the position when transfusion may be stated to be a real therapeutic measure. Hemolysis is one of the severest dangers.

Medicine in Massachusetts

HON. ELMER A. CHAPIN, Treasurer of Massachusetts, congratulated the physicians on their efforts toward stopping pernicious legislation, and stated that it had been singularly successful during the past session of the legislature. Massachusetts stands at the head in sanitary and health laws. The educated physician can do much to make life easier for the people, and no one set of people can do more to injure the citizens than uneducated (?) physicians, *i. e.*, quacks. Of the total

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expenditures of Massachusetts last year, namely, $12,000,000, there were $3,000,000 spent for its unfortunates. A great step in advance has now been made in the appropriation of $600,000 for an observation hospital for the Insane Department in the Boston district.

Other Papers Read

The following papers were also read: "Relation of the Pathological Processes to the Clinical Symptoms in Arthritis Deformans," by Dr. E. H. Nichols, Boston; "Serodiagnosis of Syphilis," by Dr. F. P. Gay, Boston; "The Intravenous Use of Strophanthin in Broken Cardiac Compensation," by Dr. A. K. Stone, Boston; "Laboratory Work by the County Physician," by Dr. M. A. Cummings, Winchester; "A Practical Diet Chart," by Dr. H. D. Arnold, Boston; "Report of Work Accomplished in Massachusetts During the Past Year," by Dr. A. T. Cabot, Boston; "Report of Committee to Suggest Suitable Employment for Individuals with Cured Tuberculosis," by Dr. Alfred Worcester, Waltham; "Tuberculosis Problem for Small Cities and Towns," by Dr. Carl A. Allen, Holyoke; "Frequently Neglected points in the Diagnosis of Tuberculosis," by Dr. C. Floyd, Brookline

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AMERICAN SURGICAL ASSOCIATION

Annual Meeting held at Philadelphia, June 3-5, 1909

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SYMPOSIUM ON THORACIC SURGERY

Thoracic Surgery

PROFESSOR FRIEDRICH, Marburg, Germany, reported eleven cases of unilateral phthisis in which he had resorted to extensive multiple resection of ribs. In two cases of multiple tuberculosis he performed total pleuropneumolysis, and in four partial pleuropneumolysis. He has not lost a single case from this operation.

DR. WILLIAM S. HALSTED, Baltimore, detailed some experimental studies he had made with reference to lung surgery.

DR. CHARLES A. POWERS, Denver, discussed surgical measures designed to relieve pulmonary tuberculosis.

DR. LEONARD FREEMAN, Denver: Collapse of the lung may be obtained in several ways: (a) By the production of artificial pneumothorax according to the methods of Murphy and others. (b) By extrapleural resection of the ribs below the first part of the cartilages to the spine, including the periosteum. (c) By removal of portions of some ribs, with periosteum along the axillary line. (d) By resections of portions of several ribs, and periosteum directly over the diseased part of the lung, usually a cavity near the apex. (e) By a similar operation, without removal of the periosteum, followed by external pressure by means of a truss. He described an operation which he had done in two cases with encouraging results.

DR. A. VANDER VEER, Albany: The hypodermic syringe, with long needle, is of value for exploratory purposes and a safe instrument for a good general practitioner to use when in doubt as to the nature of the lesion that is present. Repeated use of the aspirator is not to be condemned so long as the fluid remains sterile and is the preferable method of treatment in malignant cases. Where we have some malignancy in which the effusion is distressing to the patient, the use of the aspirator affords great relief. The use of the trocar and drainage tube is advisable if it is shown the aspirator is no longer affording benefit. Resection of the ribs is necessary when no improvement takes place with ordinary drainage tube. The latter operation should be done early in order to protect the lung from unnecessary pressure and relieve adhesions which, in the young, become so detrimental in causing spinal curvature.

DR. C. L. GIBSON, New York, reported an interesting case of tuberculous pericarditis in which he succeeded in effecting a cure by means of incision and drainage.

Treatment of Fistulas and Abscesses Following Operations for Empyema of the Thorax

DR. A. J. OCHSNER, Chicago: This paper illustrates the value of the injection of Beck's paste into persistent sinuses and abscesses following operations for empyema of the thorax. Two formulas are in use. No. 1, consisting of one part of arsenic-free subnitrate of bismuth and two parts of sterile amber vaselin, has a lower melting point than No. 2, which consists of thirty parts of subnitrate of bismuth, sixty parts of amber vaselin, and ten parts of paraffin of a sufficiently high melting point to cause the mixture to maintain its form at the temperature of the body. No. 1 is used daily or every second day until the sinus or abscess is practically free from pus; then No. 2 is used at first every second day, and later less frequently until healing is completed. These mixtures are injected at 110 to 120 F. by means of an ordinary glass syringe. Only just enough force is used to fill the cavity. The outer opening is closed with a gauze plug. The remarkable part of the treatment lies in the fact that cases in which the abscess cavity communicates with a bronchus will heal as rapidly and as perfectly as other cases, and that symptoms of sepsis disappear rapidly and that in most cases in which there is no communication with the bronchi the discharge from the sinus soon becomes sterile.

Visceral Pleurectomy

DR. ALEXANDER HUGH FERGUSON, Chicago: This operation means the removal by operation of the thickened visceral pleura in cases of chronic empyema. In six cases in which I resorted to this operation the results have been all that could be desired. All the patients gained flesh, and all cavities were completely closed. The youngest patient was 23 years of age, the oldest 45. The amount of visceral pleura removed varied from a strip an inch long to four inches wide.

DR. CHARLES H. PECK, New York, reported a case of stab wound of the heart in a colored girl. The wound was sutured successfully, and the patient was well twenty-four days after the operation.

DR. WILLY MEYER, New York, detailed a new method of esophagogastrostomy for intrathoracic resection of the esophagus.

The Parathyroid Question

DR. CHARLES H. MAYO, Rochester, Minn.: For more than fifty years reference has been made by various authors to peculiar gland bodies that were regularly associated or connected with the thyroid bodies. The glands are four in number, usually without the true capsule of the thyroid. They are from 6 to 7 mm. long, from 3 to 4 mm. wide, and 2.5 mm. thick. The pathologic changes are of simple type, i. e., degenerations, hemorrhages, cysts, and seldom tumors. In fact, there are but few tumors of the parathyroid reported, most of these being found at autopsy, and all were benign, mostly adenomas. From such reports it would appear that these glands, as compared with other organs and lesions, are singularly free from serious diseases, especially those of a surgical nature. The association of function of the glands like the thyroid, parathyroid, thymus, suprarenal and others becomes more marked as continued investigation discloses the various changes consequent on disease or removal of the various glands. It is possible that the human being with four parathyroids has some to spare, and that if those on one side are preserved, no untoward consequences will follow. This phenomenon has been noted in other double structures, the kidneys, ovaries, etc. Operations on patients with hyperthyroidism are usually confined to one side, and the blood supply being free, there is but little danger of subsequent hypothyroidism, the greatest danger occurring from operations on both sides and from secondary operations on the remaining side in single goiter. Should tetany follow the removal of the parathyroids, the indications are to administer calcium salts to maintain life until parathyroids can be secured, transplanted and function obtained, as by this means it may be possible to tide the patient over into a chronic state which may later beccome a cure. In nearly 1,200 operations for goiter I have seen no tetany.

Excision of the Larynx for Malignant Disease

DR. JAMES BELL, Montreal, reported 12 laryngectomies. In his experience partial operations on the larynx are not satisfactory. Excision of the larynx is a safe operative procedure.

In 7 of the 12 cases operations were done for intrinsic, far-advanced cancer of the larynx; in 5 for primary disease of the organ. Of the 12 patients operated on, 7 recovered.

DISCUSSION

DR. W. W. KEEN, Philadelphia: In 1908 I selected as the subject of my presidential address "Total Laryngectomy," and in it I reported a case of excision of the larynx. The patient, a man, is now perfectly well, it being 11 years since the operation. I recommended at that time that the patient be kept in the Trendelenburg position to prevent aspiration pneumonia.

DR. GEO. E. BREWER, New York: The dangers from the operation of excision of the larynx are (1) aspiration pneumonia; (2) extension of the infection downward along the muscular and fascial planes of the neck toward the mediastinum; (3) too long deprivation of food in old people who are in a bad general state. I believe in early feeding. I introduce a nasal tube into the lower part of the esophagus, and begin feeding as soon as the patient comes out of the ether. I begin the use of water in about six hours after operation, and give eggnogs and concentrated food from the start.

DR. ROSWELL PARK, Buffalo: My first laryngectomy patient was operated on about 24 years ago, and the patient nearly died of iodoform poisoning. I was afraid to use iodoform after that, and in a later case employed subnitrate of bismuth. This patient also died. An autopsy was made, and I found the lining of every bronchial tube smeared with bismuth that had formed a paste, so that the patient died of asphyxiation from the bismuth.

DR. N. B. CARSON, St. Louis, Mo., after detailing five cases in which he had resorted to laryngectomy, said that rectal anesthesia adds much to the comfort of these patients.

DR. GEORGE W. CRILE, Cleveland, Ohio: I wish to report 20 total laryngectomies. There were 2 immediate fatalities in the first 8, but none in the last 12. The ultimate results are satisfactory. One patient is living between 15 and 16 years after operation; another 5 years after operation; one is alive 4 years after operation; one after 3 years, and the remainder have been operated on too recently to be considererd at this time.

Transfusion, With a Note on Hemolysis

DR. GEORGE W. CRILE, Cleveland, Ohio: In pernicious anemia, in toxemia, leukemia, Hodgkin's disease, carcinoma, uremia, etc., no benefit has occurred on observation from transfusion. No patients with hyperthyroidism improved apparently by transfusion. In a case of pellagra rapid convalescence was noted after transfusion from an immune donor. In suitable cases, this procedure is of great value in the prevention and relief of the circulatory phenomena of shock. I am encouraged by the results of transfusion in pulmonary tuberculosis. As influencing operative surgery, further experience amply confirms the earlier observations in grave surgical risks by preliminary and postoperative transfusion. There are two notable groups susceptible of results in contemporaneous transfusion, namely, those in which there has been internal hemorrhage, grave or continuous, demanding operation at the same time, and those in which the patients are reduced by long-continued disease, by starvation or otherwise to such a degree as to render them unsafe for the operation required. In those cases the donor is attached and a sufficient amount of blood is transferred until the recipient is sufficiently restored to take the anesthetic. All preparations having been made, the patient is then anesthetized, and in the course of operation the needed amount of blood may be transferred from time time by the assistant in charge at the direction of the operating surgeon. At the close of the operation a sufficient additional amount of blood is transferred to insure the postoperative safety of the circulation. Hemolysis must be considered, first, as but one form of manifestation of the end-action between the blood of one individual against the blood of another. Second, if there is hemolysis *in vitro* it by no means necessarily follows that there will be hemolysis *in vivo*. Their agreement may be an exception. Hemolysis is a valuable aid in the diagnosis of active tuberculosis reaction, occurring more frequently than in carcinoma. In cancer the reaction is largely dependent on the stage of the disease at the time of observation. Hemolysis usually occurs in the early stages of cancer, and rarely occurs in its late stages.

The Preservation of Dissections of Surgical Anatomy with Permanent Color of Muscles, Vessels, Nerves and Organs, by a New Method

DR. EDMOND SOUCHON, New Orleans: The details of this experimental work, extending over several years, were published in THE JOURNAL, Aug. 22, 1908, and I wish here to recall only the most salient features of this new method. The basic condition is a proper embalming formula which will assure color. The aim is not so much to obtain the real color of the living, as that color varies in the various subjects, but to secure a marked contrast between the fleshy parts of muscles and the tendons, bones and other white tissues, doing away with the uniform bleached appearance presented by so many otherwise beautiful preparations seen in the museums in this country and abroad.

After a number of trials, consuming over forty subjects, I have found that so far the following formula is the one that gives the best results for this work: Arsenic, 2½ gallons, formalin 6 ounces, alcohol 16 ounces, carbolic acid 6 ounces, glycerin 16 ounces, and creosote 2 ounces. Very lean subjects should be used. A feature of some importance is to allow the parts to be dissected to drain for ten or fifteen days before dissecting them. Otherwise the dissecting is rendered unsatisfactory by the infiltration of the tissues by the embalming fluid. After the dissection is completed, it is placed in a glass jar filled with a solution of carbolic acid, one ounce to the gallon. This is changed as often as it is discolored by the blood. The next important point is the placing of the dissected parts in an empty jar without any solution of any kind, but covered with a lid. I call this stage the curing process. It is second in importance to the embalming solution, as it develops or brings out again the color without darkening the tendons or other white tissues. It also smooths the surfaces, which may be shreddy or ragged, it sharpens the edges of the muscles, thus giving better definition. It fixes the color so as to keep it from being perceptibly affected when the specimen is finally put up permanently in a weak solution of alcohol, 20 ounces to the gallon of water. The arteries and veins must be painted with moist water colors, as the coloring matter used in the injecting material will not show when the preparations are preserved in solutions. All solutions should be changed as soon as they become the least cloudy or discolored. This is essential to the permanent beauty. Otherwise the impurities in the cloudy or discolored solutions will settle on the white tissues, stain them and destroy their whiteness and brilliancy. I estimate that 85 or 90 cer cent. of the specimens turn out satisfactorily. The remainder are merely good, but not good enough to be placed in a museum, specially with one's name to it. That uniformity of color and results does not invariably follow uniformity of procedures is due, I believe, to the fact that the chemical composition of the tissues varies with the subjects. The great practical value of this method is to give us the means of building study museums composed only of real dissections placed in very large glass jars, in spacious rooms flooded with light, on tables, so that students can study them. Thus the students can prepare for the dissecting room. They are assisted in their dissections by referring to the preparations in the museum. Their work in the dissecting room is completed by showing them the great number of things which they never see in a dissecting room. They are also able to review and fix in their minds what they have really dissected themselves. Practitioners can in a few moments relearn much anatomy. Such is the study museum I am now building for the medical department of Tulane University in New Orleans. The museum contains 400 very large glass jars with dissections. I have now 200 good ones and there are 200 to be made over, because they can now be made better owing to the improvements in the method. It will take about two or three years to make over those 200.

(To be continued)

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Medicolegal

Charitable Institutions Not Liable for Injury to Employés

The St. Louis Court of Appeals says that the case of Whittaker vs. St. Luke's Hospital was brought to recover damages for an injury suffered by the plaintiff while an employé in the hospital, in working with an ironing machine or mangle, which it was alleged was out of order. The sole question presented was whether a charitable institution is liable for its torts (wrongful acts) to an injured employé. After reading numerous decisions on this question, the court concludes that the hospital ought not to be held liable.

Two rules of law, both founded on motives of public policy, came into conflict here: The rule of respondeat superior—the master must answer (or if not technically that, akin to it), and the rule exempting charitable funds from executions for damages on account of the misconduct of trustees and servants. As both rules rest on the same foundation of public policy, the question is whether, on the facts in hand, the public interest will best be subserved by applying the doctrine of respondeat superior to the charity, or the doctrine of immunity; and the court decides this cause for the hospital because in the court's opinion it will be more useful, on the whole, not to allow charitable funds to be diverted to pay damages in such a case, and, moreover, the weight of authority is in favor of this view, as expressed not only in cases where the parties seeking damages were patients in the institution, but where they were not. But the court will go no further than the facts before it required, and does not say instances of negligence of officials and servants could not arise in which it would be proper to make a charitable corporation responsible.

In some instances charitable institutions have been exonerated from liability for the negligence of their officers, trustees and servants, because they were agencies of the government, and in other instances because their funds were donated for use, in ways of charity, by individuals, and to take them to pay damages would be a diversion of the trust. It will be seen, on reading the opinions in cases where the defendants were instrumentalities of the government, that the principle on which they were held not liable was, at bottom, much the same as the principle on which private charitable institutions, in some of the best-considered cases, were exonerated; i. e., that their funds, whether donated by the government or by individuals, were intended to be dispensed for the general good in designated charitable ways. Hence, though some courts incline against holding private charities exempt from liability for damages, and attempt to draw a distinction between them and institutions which are made by law public instrumentalities, it is doubtful if this distinction is sound.

Right of Surgeon as to Protection of Patient in Operating Room

The Supreme Court of Michigan affirms, in the case of People vs. Reycraft, a conviction of a surgeon of assault and battery on another surgeon. They met in the operating room of a hospital, where the defendant surgeon arrived first with a patient who had been injured by the cars, necessitating the amputation of a leg. The other surgeon arrived a few minutes later, having been asked by the railroad company—whose regular surgeon he was—to go to the hospital and take charge of the case. The defendant considered his action intrusive, and he was pushed or thrown down. The verdict indicated that the jury were convinced that the defendant made an unjustifiable attack, or an excessive defense.

The jury were instructed in this case that if they found that the alleged intruding surgeon first made an unjustifiable assault on the defendant, or that the defendant had grounds to believe, and did honestly believe, that he was about to do him personal injury, then the defendant had a right to use such violence as was necessary to protect himself from personal injury, but if he did what was unnecessary, or did more than was necessary in order to defend himself, he became and was guilty of assault and battery. No mere words, no matter how irritating or insulting, would justify an assault and battery.

In regard to the defendant's claim that what he did was lawful as a necessary protection of the injured man, the jury were instructed that if they found it to be a fact that the second surgeon's presence in the operating room and his conduct therein before the assault was dangerous to the injured man, or if the defendant had good reason to believe, and did in good faith believe, such to be the case, he had no right to begin by assaulting the second surgeon; but he had the right to request, and he should have requested him, under such circumstances, to leave the room. Then, if he refused, he should have gently laid his hand on him, and not proceeded with greater force than might have been made necessary by resistance. And, in deciding as to what degree of force he was justified or would be justified in using in overcoming such resistance, the jury must take into consideration all the circumstances of the case, including the physical appearance of the two men, and anything else that would throw light on that, or bring their minds to a just realization of the facts as they existed. If the defendant did not request the other surgeon to leave the room, but assaulted him in the first instance, he did what was not necessary for the protection of the injured man, and was guilty of assault and battery.

The Supreme Court thinks that the defendant had no occasion to find fault with the instructions given.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Boston Medical and Surgical Journal

July 8

1 The Widening Sphere of Medicine. E. W. Taylor, Boston.
2 The Gospel of Peace. A Vacation in Norway. C. K. Austin, Paris, France.
3 The Pharmacopeia: What it Is, and What it Is Not. S. Solis-Cohen, Philadelphia.
4 *Special Heater for Hot-Air Sterilizing. R. Amory, Boston.

4. **Heater for Hot-Air Sterilizing.**—The apparatus designed by Amory for sterilizing instruments, consists of an electric heater which is controlled by a switch, and a copper box or oven, the cover of which is lined with asbestos to check radiation. It is adapted to use the street current of 110 volts ordinarily supplied by electric companies and connects by an extension electric corded wire with any socket for an electric light. The heat is radiated from a drum-shaped piece of solid copper, around and beneath which is the heating coil. On top are four holes, two chisel-shaped and two cone-shaped, designed to char and sterilize the wooden sticks which surgeons use to clean their nails before operating. Below the drum is a shield, and below this is a handle controlling three switches by which different degrees of heat may be obtained. The copper boxes, or ovens, are made in three sizes, with open circle cut in the bottom and circular tube surrounding the drum of the electric heater to allow the heat waves to pass freely into the copper oven. The asbestos lined cover has a place for a thermometer.

Medical Record, New York

July 10

5 Leprosy. L. D. Bulkley, New York.
6 *Diagnosis and Localization of Appendiceal Abscesses. C. C. Rogers, Chicago.
7 *Importance of the Early Recognition of Bone Tuberculosis. A. J. Davidson, Philadelphia.
8 *Peculiar Case of Meningitis in which Treatment by Antimeningococcus Serum was Attempted. J. P. Gardiner, Toledo, Ohio.

6. **Appendical Abscesses.**—Rogers urges that catarrhal appendicitis should be considered a surgical disease. Acute suppurative appendicitis is always surgical and should be operated on without delay. Gangrenous appendicitis is always surgical and should be operated on early before there is a thrombosis of the mesenteric vessels. Tuberculous appendicitis is seldom primary, but is always surgical, and may require extensive resection. Appendicitis obliterans caused by repeated catarrhal attacks resulting in a fibrous obliteration of the appendix including the mesoappendix, causing a neuroma of the appendix and mesoappendix is always surgical. Appendical abscesses are located in the region of the appendix and do not locate in regions distant from the appendix.

7. **Early Recognition of Bone Tuberculosis.**—Davidson believes that radiography is of very great value and should be used in all doubtful cases. The slightest bone erosion can be determined and interpreted by a skillful radiologist and even before erosion, the radiogram will indicate, by the diminished resistance to the passage of the *x*-ray, the greater vascularity of the epiphyses, which always is present at this early stage.

8. **Meningitis Treated by Anti-Meningococcus Serum.**—Gardiner describes a case of cerebrospinal meningitis in which the antimeningococcus serum was used rather late in the disease. After two punctures had been made in the lumbar region it became impossible to withdraw fluid or to introduce the serum. The case terminated fatally, and autopsy showed a very thick exudate damming up the fluid in the ventricles of the brain and causing death by pressure. Intracellular diplococci were found in the fluid removed.

New York Medical Journal

July 10

9 *Ipecac Treatment of Amebic Dysentery. G. Dock, New Orleans.
10 *Agricultural Aspects of the Pellagra Problem in the United States. C. L. Alsberg, Washington, D. C.
11 *Etiology of Pellagra. C. H. Lavinder, Washington, D. C.
12 Prognosis in Eye Diseases Viewed from the Standpoint of the Patient's Rights and the Ophthalmologist's Duty. A. Duane, New York.
13 Ectopic Gestation. J. W. Kennedy, Philadelphia.
14 Relaxation of the Sacroiliac Synchondrosis: Third Paper. J. Dunlop, Washington, D. C.
15 *The Surgical Appendix. R. F. Ward, New York.
16 *Treatment of Neurasthenia. M. D. Keller, New York.

9, 10, 11. Abstracted in THE JOURNAL, May 8, 1909, p. 1537.

15. **Surgical Appendix.**—Ward says that whenever the abdomen is opened for the relief of an inflammatory process in the neighborhood of this organ it should be removed whether it appears to have shared in the inflammatory process or not.

16. **Treatment of Neurasthenia.**—Keller outlines a course of treatment for this class of patients such as can easily be conducted at a clinic or in private practice with little or no expense to the patient. He says that before commencing to treat these patients the physician must rid himself of the impression that neurasthenics suffer from imaginary ills. It is true that they complain of pains far out of proportion to the severity of the illness, but as a matter of fact, these patients are ill—there is something that really pains or irritates them, and on account of their introspective tendency, they exaggerate all these symptoms.

After having completed the history, a physical examination should always be made, although the physician may feel certain that he will derive no further information. The treatment proper may be divided into hygienic, dietetic, and medicinal. The physician should therefore insist that such a patient spend a few hours every pleasant day in the open air. He must walk, as this not only gives him the fresh air, but also the best of exercise. A cold daily bath, on arising, is very beneficial for those who can stand it. But many can not endure this rigid and frigid treatment, and furthermore, many have not the luxury of a private bathtub. In these cases, a cold pack or a cold douche (applied for about one minute at the outset and gradually increasing the duration) followed by vigorous friction, can be substituted with benefit. A towel dipped in cold water, held by the patient over the shoulder and squeezed out, or having this performed by another person, produces all the benefits of a spinal douche. A warm bath before retiring will allay restlessness and benefit insomnia. Almost all neurasthenics are constipated. These patients must be instructed how to form a proper habit so that the bowels will move without medication. They should be advised to go to stool every morning, just after arising. A glass of cold water on an empty stomach aids peristalsis. They should go to stool whether they have any inclination to move their bowels or not and remain ten, fifteen or even twenty minutes until there is a movement.

Diet is an important question with these patients. Tea, coffee and alcoholic drinks must be eliminated, as they tend to increase the nervousness of the patient. Tobacco must be restricted for the same reason. No specific diet can be mentioned, but each individual case must be treated along individual lines. As a general rule, the patients need nourishing foods to build them up. Fried foods should be avoided as they tend to upset the stomach and to cause constipation. Fruits that leave large residues may be allowed on account of their laxative effect. The medicinal treatment consists mainly of sedatives and tonics. The following formula Keller finds very effective in allaying the nervousness, sleeplessness, headache, etc.:

B.	gm. or c.c.	
Potassium iodidi	33	gr. v
Potassium bromidi,	66	gr. x
Ammonii bromidi, āā	26	gr. lv
Sodii bicarbonatis	39	m. vi
Tincturæ nucis vomicæ	52	m. viii
Tincturæ gentiani co.		ad. 3ii
Aquæ destillat., q. s.	8	

When this combination fails it is then advisable to give, in addition, some form of valerian. A pill made of 1 grain each of quinin valerate, zinc valerate, and ammonium valerate will allay nervous symptoms. When the patient's bowels are regular, the nervousness abated, the headache and sleeplessness gone, it is then proper to begin tonic treatment, which must be kept up for eight or ten weeks or longer if necessary. Arsenic in the form of Fowler's solution or in tablets containing arsenous acid probably produces the best results. Strychnin (or nux vomica), quinin and iron may be added, each separately or in combination.

Lancet-Clinic, Cincinnati

July 3

17 Ball's Operation in the Treatment of Pruritus Ani; Report of Case in which Necrosis of the Flap Occurred. L. J. Krouse, Cincinnati, Ohio.
18 Surgical Aspect of Goiter. H. O. Walker, Detroit, Mich.
19 Acute Mastoiditis: History, Symptoms and Surgical Treatment. W. Thrasher, Cincinnati, Ohio.
20 Modern Treatment of Esophageal Stricture. R. H. Johnston, Baltimore.

The Northwestern Lancet, Minneapolis

June 15

21 A Trip Abroad. T. Schott and B. Nauheim. W. A. Jones, Minneapolis.
22 Conservatism in Traumatic Surgery. W. Courtney, Brainerd, Minn.
23 Diverticula of the Esophagus; Report of Six Cases. H. S. Plummer, Rochester, Minn.
24 Appendicitis as a Complication of Pregnancy and the Puerperal State. L. C. Weeks, Detroit, Minn.

Kentucky Medical Journal, Bowling Green

June

25 Diphtheritic Cast of Larynx. I. Lederman, Louisville.
26 Prevention of Diphtheria. G. R. Jenkins, Louisville.
27 Diagnosis and Treatment of Diphtheria. C. G. Hoffman, Louisville.
28 Complications and Sequelæ of Diphtheria. F. H. Johanboeke, Louisville.
29 Intubation. L. Kahn, Louisville.
30 An Obstetrical Case. E. Speidel, Louisville.

Woman's Medical Journal, Toledo, O.

June

31 Résumé of the Various Preparations used in Tuberculin Tests. E. S. L'Esperance, New York.
32 Neurasthenia. A. Martine, Utica, N. Y.
33 Rupture of the Uterus. A. Bonner, Brooklyn, N. Y.
34 Teaching of Hygiene in America. H. C. Putnam, Providence, R. I.
35 Treatment of Chronic Intestinal Autointoxication. F. Forchheimer, Cincinnati, Ohio.
36 *The von Pirquet Tuberculin Reaction in 154 Children in an Orphanage. M. Michael, Chicago.

36. **Cutaneous Tuberculin Reaction.**—One hundred and fifty-four children, in an orphanage, ranging in age from 6 to 15 years were tested by Michael for the von Pirquet tuberculin reaction. The reaction varied somewhat in intensity. In some instances the vaccinal lesion was not more than one-eighth of an inch in diameter, of a pale color, and with little swelling; in others it was larger, and bright red, and surrounded by considerable tumefaction. Of the 46 children showing a positive reaction, 3 were 6 years; 4 were 7 years; 6 were 9 years; 6 were 10 years; 5 were 11 years; 4 were 12 years; 8 were 13 years; 7 were 14 years; 3 were 15 years. The family history is of interest. In 53 of the children either one parent had died of tuberculosis or was suffering from the disease at the time the test was made. The reaction was positive in 25 of these 53 cases.

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Archives of Pediatrics, New York

June

37 Inspiratory Stridor and Dyspnea in Infants. A. D. Blackade and H. S. Muckleston, Montreal.
38 *Still's Disease. D. Hingston, Montreal.
39 *Diagnostic Value of Lumbar Puncture in Acute Tuberculous Meningitis of Children. F. E. Sondern, New York.
40 Relative Frequency of Abdominal Tuberculosis in Children in Great Britain and in the United States. D. Bovaird, Jr., New York.
41 *Bacterial Content of Whey. O. M. Schloss, New York.
42 Sleep Sweats in Chronic Pharyngeal Stenosis. J. R. Clemens, St. Louis.
43 Diabetes in a Boy of Ten. H. Heiman, New York.
44 Fatal Vomiting (Recurrent Type) in a Child. E. C. Jones, Philadelphia.
45 Tuberculous Adenitis of Bronchial Lymph Glands, Probably Causing Intermittent Atelectasis. R. L. Pitfield, Philadelphia.
46 Acute Dilatation of the Stomach in Infancy. W. P. Lucas, Boston.

38. Still's Disease.—Hingston reports two cases of so-called Still's disease, a chronic progressive enlargement of the joints associated with general enlargement of the glands, chiefly the supratrochlear and those of the axilla and neck, and enlargement of the spleen. Fresh air, arsenic, massage and passive movements produced prompt results—slight in one case, marked in the other.

39. Abstracted in THE JOURNAL, Nov. 7, 1908, p. 1627.

41. Bacterial Content of Whey.—Schloss' experiments show that in the rennin coagulation of milk many of the bacteria are included in the clot and that the whey contains far fewer bacteria than the corresponding milk.

Colorado Medicine, Denver

June

47 Laryngeal Fissure for Intrinsic Laryngeal Carcinoma. F. L. Dennis, Colorado Springs.
48 Idiopathic Inequality of the Pupils of the Eyes. E. T. Boyd, Leadville.
49 Case of Pemphigus of the Conjunctiva. W. C. Bane, Denver.
50 Congenital Cavernous Telangiectasis. L. A. LaGarde, U. S. Army.
51 The Trained Nurse. E. Stuver, Fort Collins.

Surgery, Gynecology and Obstetrics, Chicago

June

52 Points in Connection with Gastric Surgery. E. S. Bishop, Manchester, Eng.
53 Influence of Corsets and High-heeled Shoes on the Symptoms of Pelvic and Static Disorders. E. Reynolds and R. W. Lovett, Boston.
54 *Prevention of Adhesions in Abdominal Surgery. J. C. Webster, Chicago.
55 Significance of Peritoneal Adhesions Following Operations. H. T. Byford, Chicago.
56 *Local Anesthesia. L. L. McArthur, Chicago.
57 Radical Treatment of Deformity Following an Old Fracture of the Lower Epiphysis of the Tibia. H. O. Felss, Cleveland, Ohio.
58 Pathologic Relationships of Exophthalmic and Simple Goiter. L. B. Wilson, Rochester, Minn.
59 *Operative Treatment of Hyperthyroidism. C. H. Mayo, Rochester, Minn.
60 *Thyroid Gland and Vascular Surgery. A. Carrell, New York.
61 The Thyroid and Parathyroids. J. P. McKelvy, Pittsburg.
62 *Frequency, Etiology, and Practical Significance of Contractions of the Pelvic Outlet. J. W. Williams, Baltimore.
63 *New Device and Method for Administering Ether. A. H. Miller, Providence, R. I.
64 The Adhesive Corset as a Surgical Dressing. C. F. Weinberger, Chicago.
65 Examining the Gall Bladder through a Vaginal Incision. W. B. Reid, Rome, N. Y.
66 Suppurating Fibroids Following Delivery. E. A. Hall, Vancouver, B. C.
67 Preparatory and After-Treatment of Celiotomy Cases. S. E. Tracy, Philadelphia.

54. Prevention of Adhesions in Abdominal Surgery.—Experimentally, adhesions of the peritoneum of dogs may be produced by undue exposure to dry air, cold air, mechanical trauma, and cultures of micro-organisms. Therefore, says Webster, in operating on the human subject, these factors should be avoided. Theoretically, the most suitable atmosphere is one that is very moist and of the temperature of the peritoneum. Practically this is never found, because operating staffs dislike to work under such conditions. An atmosphere charged with moisture at a temperature of 90° F. is perhaps the limit of endurance for prolonged surgical work. Defects in atmospheric conditions may be to a great extent made good by the avoidance of unnecessary exposure of viscera, protection of everything save the immediate area of operation with gauze pads soaked in hot normal saline solution. In order to reduce trauma of the peritoneum to a minimum, sponging should be employed as little as possible and all manipulations should be carried out with great gentleness. The injudicious use of retractors is likewise to be deprecated. Self-retaining instruments are better than those which are constantly being manipulated by an assistant. In removing tissues or separating adhesions, raw areas should not be left exposed when it is possible to bury them under peritoneum.

56. **Local Anesthesia.**—McArthur reviews the present status of local anesthesia and urges that the surgical profession give this subject more attention than it has received at their hands in the hope that observations by many men will eventually lead to a definite and precise knowledge on which practical conclusions may be based.

59. **Operative Treatment of Hyperthyroidism.**—The surgical treatment of hyperthyroidism must embody methods of reducing the secretion of the gland. The reduction of the blood supply in the gland, or a removal of a varying quantity of the gland is at present the accepted method of surgical treatment. In choosing a method to fit the condition in those patients seen in the early stage of the disease, in whom thyroidectomy is not justifiable, the ligation of the superior thyroid arteries and veins on both sides seems to bring about a rapid cure. This method is also free from the possible risks of hypothyroidism from removal of the gland. It is successful in most instances and can be followed later by removal of a portion of the gland, if a recurrence of the symptoms should make it necessary. In about two-thirds of the cases seen by the surgeon, the operation for the removal of the larger lobe and isthmus can be undertaken without undue risk. In at least one-fourth of the cases the condition is so extreme from the continued toxic condition or from acute exacerbation, that the ligation of the vessels, as advocated by Wolfler, is advisable, at least as a preliminary procedure. In a few such cases the results are astonishing. There is a relief from all symptoms and an increase within a few months, and should thyroidectomy be then undertaken it will be done with much less risk than the former procedure of ligation. These operations Mayo designates the graduated operations for hypothyroidism.

Some patients are in such *extremis* that preliminary treatment by heart tonics, diuretics, *x*-ray applications, and absolute rest is necessary before even the resort to ligation of the vessels is advisable. Patients who have developed the symptoms of thyroidism on a previously existing goiter are usually fair risks for thyroidectomy. The condition designated as unilateral exophthalmic goiter is also readily treated by enucleation of the offending encapsulated adenoma. Myxedema or hypothyroidism as a terminal stage of hyperthyroidism may be treated by the removal of the gland to the discredit of surgery, when the gland is already lacking in secretion.

60. **Thyroid Gland and Vascular Surgery.**—The treatment of hypothyroidism and athyroidism by transplantation of the thyroid is regarded by Carrel as being more immediately promising of practical results than any other form of treatment. The feasibility of the operation has been demonstrated. The actual problem is to render it ordinarily successful. Success in transplantation depends on two factors, biologic and surgical. We are still ignorant of the biologic factors of success and failure in transplantation of tissues between animals of the same species. It is certain that, at least in some cases, the gland adapts itself to its new owner, does not undergo any marked histologic changes, and functionates normally. But we do know how frequent are the cases in which the new tissue and its host will have a pernicious influence on each other. The surgical factors can probably be controlled. The operation is very much simpler than the transplantation with anastomoses of the vessels. However, if it is found that it can not be frequently successful, the transplantation of large pieces of thyroid, with union of their vessels to the vessels of the patient must be attempted. In this indirect manner vascular surgery may improve the results of the treatment of hypothyroidism and athyroidism.

62. **Contraction of the Pelvic Outlet.**—Williams claims that funnel-shaped pelves frequently give rise to more or less serious dystocia, are an important factor in the causation of deep perineal tears, and occasionally convert what promise

to be easy low forceps deliveries into most difficult and dangerous operations. Typical funnel pelves, in which the usual external measurements as well as those of the superior strait are normal, while the distance between the ischial tuberosities measures 8 cm., or less, were observed in 6.92 per cent. of 1,200 consecutive pregnant women, and occurred with equal frequency in both the white and black race. Generally contracted funnel pelves, in which shortening of the usual external measurements as well as of the diameters of the superior strait is associated with a distance of 8 cm. or less between the ischial tuberosities, occurred in 1.19 per cent of the white and 4.91 per cent. of the colored women, being 4 times more frequent in the latter. Typical funnel pelvis constituted 55.7 per cent. of all cases of pelvic deformity in white, as compared with 17.8 per cent. in colored women, and therefore are of especial practical importance in the former.

While a shortening of the transverse diameter of the outlet to 8 cm., or less, indicates the existence of a funnel pelvis, it should be regarded merely as a danger signal; as the possibility of dystocia will depend on the relation between its length and that of the posterior sagittal diameter. The latter is the distance from the center of the former to the tip of the sacrum, and must increase in length as the transverse diameter becomes shortened. Typical funnel pelves are apparently due to the presence of six vertebræ in the sacrum —so-called high assimilation, which so changes the relations of the sacroiliac joints as to permit the lower portions of the innominate bones to approach one another. In the generally contracted type, the outlet contraction probably represents only an exaggeration of the faulty development which characterizes the entire pelvis.

In view of the frequent occurrences of funnel pelves, palpation of the pubic arch should form an integral part of the examination of every pregnant woman. Whenever it appears to be narrowed the distance between the tubera ischii should be measured, and when it is 8 cm., or less, the length of the anterior and posterior sagittal diameters should also be determined. Only by so doing can one avoid being occasionally placed in the unenviable predicament of being obliged to resort to a serious obstetric operation after having assured the patient that her pelvis was normal. Fortunately, the great majority of labors complicated by funnel pelves end spontaneously. In the lesser degrees of contraction low forceps may give satisfactory results, while in the more pronounced cases the operation of choice is Cesarean section at the end of pregnancy, or pubiotomy after the head has reached the pelvic floor.

63. **New Device for Administering Ether.**—Miller describes his method of administering ether as he has employed it with entire success in over 6,000 cases. The apparatus is very simple. It consists of: 1, an open cone; 2, a ring of sheet aluminum; 3, a handkerchief and diaphragm of gauze. The cone is made from three sheets of newspapers, folded to form a flat strip six inches wide. This strip is folded on itself to form a funnel which, when flattened out, has a breadth of six inches. This funnel is covered with a towel. The ring is made from a strip of 28-1000 sheet aluminum, two inches wide and fifteen inches long. This strip is bent to form a ring which is adjustable in size. The ring may be made of brass and silver plated. The handkerchief is a piece of No. 1 surgical gauze, three feet by eighteen inches. The diaphragm is composed of eight layers of the same gauze, four by six inches. To administer ether by this method, which is styled the "handkerchief method," the cone is prepared as follows: Place the diaphragm over one end of the cone. Adjust the aluminum ring to a size a little smaller than the inside of the cone. Place the ring over the diaphragm and push it inside the cone, carrying the diaphragm to the full depth of the ring. Pull the ring open as far as possible, fixing the diaphragm in the cone. At one end of the cone there now is a chamber, its sides formed of the thin sheet of aluminum, its floor formed of eight layers of gauze, and its roof free. The roof of this chamber is the distal end of the cone.

Fit the proximal end of the cone closely to the patient's face. Moisten the gauze handkerchief with a few drams of ether. Beginning with one corner introduce the handkerchief gradually into the chamber. Thus the patient becomes very slowly accustomed to the ether vapor. Pour ether slowly on the gauze handkerchief in the chamber until the patient is completely etherized. Do not remove the cone from the face until the anesthesia is complete. If this procedure is carried out slowly, there is no coughing, choking, or feeling of suffocation. The supply of air necessary for respiration is not interfered with, and the amount of ether vapor inspired is imperceptibly increased. During the operation, ether is added constantly, drop by drop, or is poured on the handkerchief frequently in small quantities, at the distal end of the cone, or through the proximal end, on removing the cone momentarily from the patient's face. The handkerchief is frequently taken from its chamber and shaken out. In this way the evaporating surface is kept free and the amount of ether remaining on the handkerchief is frequently noted.

Alabama Medical Journal, Birmingham

June

68 Etiology of Typhoid Fever. H. Johnston, Birmingham.
69 Cholecystitis as a Complication and Sequel of Typhoid Fever. E. M. Prince, Birmingham.
70 Typhoid Fever—Its Pathology and Treatment. G. Dock, New Orleans.
71 Acute General Miliary Tuberculosis. E. V. Caldwell, Bessemer, Ala.
72 Analysis of Fifty Operative Cases of Appendicitis. W. M. Jordan, Birmingham, Ala.
73 Home Treatment of Tuberculosis. W. C. Gewin, Birmingham, Ala.

Laryngoscope, St. Louis

July

74 *Why a Peripheral Tone Analysis is Necessary to Explain the Phenomena of Tone Perception. G. E. Shambaugh, Chicago.
75 Transmutation of the Epithelium of the Tonsil into Connective Tissue Cells. J. Wright, New York.
76 Bronchoscopy and Esophagoscopy. E. F. Ingals, Chicago.
77 Id. T. H. Halsted, Syracuse.
78 New Electric Pharyngoscope. H. Hays, New York.
79 Pharyngoscopic Studies. P. Fridenberg, New York.
80 Cerebral and Epidural Abscesses of Otitic Origin. G. T. Ross, Montreal.
81 *Black Hairy Tongue—Hyperkeratosis Linguæ. H. Arrowsmith, Brooklyn.

74. **Phenomena of Tone Perception.**—Shambaugh believes that the telephone theory of central tone analysis is not only untenable, but is entirely lacking in scientific support, and that the theory of peripheral tone analysis in the cochlea is indispensable for the following reasons: 1. The elaboration of structures in the cochlea all point to the conclusion that a peripheral specialization, that is, a peripheral tone analysis, is located here. 2. A comparative physiologic study of special sense organs points toward peripheral specialization of function in all of the special sense organs. This is as true of the ear as it is of the other special organs. 3. The secondary phenomena of tone perception are plausibly accounted for only on the hypothesis of a peripheral tone analysis in the cochlea. 4. The peculiarities in tone perception that occur in connection with pathologic changes in the labyrinth, such as tone islands, or defects in the midst of the tone scale, and the phenomena of diplacusis, as well as the occurrence of peculiar types of tinnitus aurium argue in favor of a peripheral rather than a central tone analysis. 5. The production of circumscribed areas of degeneration in the organ of Corti as the result of exposure to long-continued overstimulation by intense tones of a certain pitch amounts to a practical demonstration of the existence of peripheral analysis.

81. **Black Hairy Tongue.**—Arrowsmith places on record an instance of this rare and curious lesion occurring in his own person. He was led to look at his own tongue by the persistent sensation, which had lasted for several days, of having a tooth-brush bristle, a mustache hair, or some similar substance in contact with its upper surface. This irritation impelled him to scrape it with his upper teeth and expectorate frequently, in the effort to dislodge the supposed foreign material.

There was at no time the slightest pain or tenderness. Two-thirds of the distance from the tip to the circumvalate papillæ, on the left side, was an area, ovoid in form, measuring about three-quarters by one-half an inch, slightly elevated and of a dark brown color. The surface of the tongue was otherwise entirely clean and normal in appearance. On stroking this area with a probe, the papillæ were raised into a sort of crest such as is seen on the fur of a soft-haired animal after immersion. Some of the papillæ were at least three-

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eighths of an inch in length. A number were cut off, *en masse*, with scissors, and submitted to examination. The microscopist reported that the process corresponded to a hyperkeratosis. In about ten days the trouble entirely disappeared and has since given no indication of any tendency to recur. No treatment was instituted. The personal history was absolutely negative, except so far as tobacco was concerned.

Vermont Medical Monthly, Burlington

June

82 Diagnosis and Treatment of Initial (Specific) Lesions. W. S. Reynolds, New York.
83 Chronic Prostatitis. W. W. Townsend, Rutland.
84 Lesser Known Properties of the Blood. B. H. Stone, Burlington.

Journal of Ophthalmology and Oto-Laryngology, Chicago

June

85 Arteriosclerosis in Relation to Ocular Lesions. W. H. Wilmer, Washington, D. C.
86 Congenital Fibroma of the Cornea—Report of a Case. W. A. Mann, Chicago.
87 Sources of Error in Functional Tests of Hearing. A. H. Andrews, Chicago.

American Medicine, New York

June

88 The Physiologic Action of Diuretics and Their Comparative Value. W. H. Porter, New York.
89 Conditions of Mal-Alignment of the Cervical Vertebræ: Their Ocular Significance. M. E. Bates, Denver.
90 Vaccine Therapy. W. H. Woglom, Brooklyn, N. Y.
91 *The Fetal Circulation. A. G. Pohlman, Bloomington, Ind.
92 Earaches, Their Causes and Treatment. H. Jarecky, New York.
93 Differential Diagnosis Between Gastric Ulcer and Cholelithiasis. H. Weinstein, New York.
94 Vaginal Hysterectomy Followed by Appendicitis: Delayed Operation: Death. H. Cruicher, Roswell, N. M.
95 *The Modern Corset. G. M. Niles, Atlanta, Ga.

91. **Fetal Circulation.**—Pohlman believes that he has established the correctness of the Galen-Harvey theory of the fetal circulation, that the foramen ovale affords communication between the auricles and that mixed blood passes from the right into the left auricle. The theory of Galen-Harvey states that all the arteries in the fetus contain mixed blood, and is a good working theory for normal as well as abnormal conditions in development. Pohlman sides with Munro of Boston, who has been advocating the possibility of ligating the ductus arteriosus. As an anatomist, he believes that with the recent advances in chest surgery, there is no reason why the operation may not be done successfully, provided, of course, that the failure in closure of the ductus is not due to some primary defect in the lung circulation itself.

95. **The Modern Corset.**—Niles commends the modern straight front corset, which, when properly fitted, tends to support and keep in place the abdominal organs.

Pennsylvania Medical Journal, Athens

June

96 Evolution of Medicine Since 1848. A. E. Fretz, Sellersville.
97 Treatment of Tuberculosis in Rural Districts. W. H. Brown, Richlandtown.
98 Tuberculous Phthisis; Is Second Recovery Possible? W. F. Dutton, Pittsburg.
99 The Tuberculosis Dispensary System of the Pennsylvania Department of Health: Sketch of its Organization and Methods. T. H. A. Stites, Harrisburg.
100 Factors in the Operative Treatment of Pulmonary Tuberculosis. W. W. Babcock, Philadelphia.
101 *Roentgen-Ray Diagnosis of Tuberculous Joint Disease. J. K. Young, Philadelphia.
102 *Compound Comminuted Fracture of the Tibia. W. H. Lowry, Carbondale.
103 *Fracture of Pelvis with Special Relations to Urethral Injury. A. G. Fell, Wilkes-Barre.
104 *Indicanuria. C. Rea, York, Pa.
105 *New Method for the Quantitative Estimation of Albumin in Urine. E. H. Goodman, Philadelphia.
106 Difficulties in the Diagnosis of Scarlet Fever. J. F. Schamberg, Philadelphia.
107 Treatment of Scarlet Fever. F. L. Van Sickle, Olyphant.
108 Color Photography by the Lumière Process, with Stereopticon Demonstrations of Slides, Showing the Surgical Significance and Advantages. C. B. Longenecker, Philadelphia.
109 *Mechanical Treatment of Visceral Ptosis and a New Method of Applying a Bandage. J. T. Rugh, Philadelphia.
110 *An Ophthalmologic Phase of the Dangers of Consanguineous Marriages. W. C. Posey and A. C. Sautter, Philadelphia.

101, 102, 103, 104. Abstracted in THE JOURNAL, Oct. 31, 1908, p. 1542.

105. Published in THE JOURNAL, Dec. 12, 1908, p. 2055.

109. Abstracted in THE JOURNAL, Oct. 10, 1908, p. 1270.

110. Abstracted in THE JOURNAL, Oct. 17, 1908, p. 1356.

New York State Journal of Medicine, New York

June

112 *Blood Transfusion as a Therapeutic Measure. W. F. Campbell, Brooklyn.
113 Certain Phases of Acute Anemia. G. W. Crile, Cleveland, O.
114 *Treatment of Cerebrospinal Meningitis by the Serum of Flexner and Jobling. L. E. Holt, New York.
115 *Congenital Abnormalities of Cervical or Spinal Origin. N. Jacobson, Syracuse.
116 *Scleroderma, with Special Consideration of the Eosinophilia. S. E. Ward and E. Corning, Albany.
117 *Baths and Exercises in the Treatment of Abnormal Tension of the Heart and Blood Vessels. L. F. Bishop, New York.
118 *Scarlatina. H. A. Fairbairn, Brooklyn.
119 *Glandular Fever. W. B. Garlock, Little Falls, N. Y.
120 Ocular Signs of Cardiovascular Disease. A. J. Bedell, Albany.

112, 115, 116, 117. Abstracted in THE JOURNAL, Feb. 20, 1909, pp. 654, 655, 656.

114, 118, 119. Abstracted in THE JOURNAL, Feb. 6, 1909, p. 496.

Ophthalmic Record, Chicago

June

121 Exophoria; Symptoms, Significance and Treatment. O. Wilkinson, Washington, D. C.
122 Some European Eye Clinics and their Clinical Opportunities—Vienna, London, Utrecht and Paris (concluded). A. P. Horwitz, Chicago.
123 Staphylococcus Vaccination in Phlyctenular Disease. H. Gradle, Chicago.
124 Diagnosis of Syphilitic Eye Lesions by Means of the *Spirochæta pallida* and the Serum Reaction of Wassermann. B. C. Corbus and F. G. Harris, Chicago.
125 Meningococcus Conjunctivitis. S. H. McKee, Montreal.

Maryland Medical Journal, Baltimore

June

126 Prevention of Typhoid Fever. C. W. G. Rohrer, Baltimore.
127 Oribasius Æthus: Alexander of Tralles; Paulus Ægenita. H. M. Cohen, Baltimore.

July

128 Sanitation on the Isthmus. A. K. Bond, Baltimore.
129 Some Phases of Family Psychoses. J. G. Fitzgerald, Boston.
130 Rhazes (925-1045 A. D.). H. M. Cohen, Baltimore.
131 Ideals of Health in Town and Country. C. O'Donovan, Baltimore.

Southern Medical Journal, Nashville, Tenn.

June

132 Diseases of the Colon Due to Extraintestinal Causes: Especially Membranous Colitis. A. B. Cooke, Nashville.
133 *The Basting Suture in Gastroenterostomy. J. W. Long, Greensboro, N. C.
134 Carbolic Gangrene of Thumb Following Injection for Cure of Synovial Ganglion. P. DeWitt, Nashville.
135 Visceroptosis: A Historical Review. R. C. Bryan, Richmond.
136 Causes of Peritonitis. G. S. Foster, Manchester, N. H.
137 *Abdominal Aneurism Treated by Wiring. M. Willis, Richmond.
138 *Status of Certain Postoperative Procedures Among Fifty Prominent American Surgeons. H. P. Cole, Mobile.

133. **Basting Suture in Gastroenterostomy.**—It occurred to Long that a basting suture applied around the circumference of the incision in both stomach and jejunum, after the serosa and muscularis were incised, but before trimming away the mucosa, would hold the mucosa snugly against the muscularis, and thus prevent prolapse of the mucosa, thereby facilitating the introduction of the through-and-through sutures. A full curved, round needle, carrying fine chromicized cat gut, is entered very near the margin of the cut serosa, and penetrates all the coats of the bowel, coming out in reverse order. The needle is again entered, this time a short distance behind its point of exit, and again sweeps through all of the coats, basting the mucosa securely against the outer layers. It is to be noted that while the suture shows a loop on both the outer and inner surface, that on the serosa represents an interrupted suture, while every line of the mucosa is embraced in the suture. In this manner the basting suture holds the mucosa in place and prevents most effectually any hemorrhage from the cut edges.

137. Abstracted in THE JOURNAL, Jan. 16, 1909, p. 243.

138. **Status of Certain Postoperative Procedures.**—Cole summarizes the views of 50 leading American surgeons as to the value of certain postoperative procedures. The popularity of Fowler's position is definitely shown in its employment by 92 per cent. of these 50 surgeons. The use of proctolysis by 99 per cent. shows its universal acceptance as a therapeutic agent in the postoperative treatment of infected pelvic conditions; 92 per cent. of these surgeons use proctolysis in conjunction with Fowler's position. There is undoubtedly a marked variance of opinion as to the employment of stimulative drugs in the treatment of postoperative shock, and a growing tendency

to physiologic rather than drug therapy. The fact that 70 per cent. of these surgeons prefer vaginal drainage in infected pelvic cases gives the preponderance of opinion in favor of this procedure in the postoperative treatment of infected pelvic cases.

Detroit Medical Journal

June

139 Value of the Mixed Toxins in Inoperable Sarcoma: Based on a Study of Cases Treated During the Past Sixteen Years. W. B. Coley, New York.
140 Foreign Body Cystitis; Report of Cases. G. E. Potter, Detroit.

California State Journal of Medicine, San Francisco

June

141 Antisepsis and Asepsis in Surgery. W. W. Beckett, Los Angeles.
142 Amebic Dysentery. J. D. Long, U. S. Public Health and Marine-Hospital Service.
143 Latent Tuberculosis: Its Symptoms, Treatment and Prognosis. M. Rothschild, San Francisco.
144 Dosimetric Method of Anesthesia by Inhalation. C. R. Krone, Oakland, Cal.
145 Osteoarthritis. S. J. Hunkin, San Francisco.
146 Adactylia Involving Both Hands and Left Foot with Right Amelus. F. Gray, San Francisco.
147 *Differential Diagnosis of Tuberculous Meningitis. G. E. Ebright, San Francisco.
148 *Brain Tumor. C. Bush, San Francisco.
149 Tuberculosis of the Kidneys. W. F. Cheney, San Francisco.
150 Somnambulism Relieved by Hypnotic Suggestion. G. H. Richardson, San Francisco.
151 *Reminiscences of Ten Years as Commissioner of Health in Chicago, and Suggestions for the Future. A. R. Reynolds, Chicago.
152 Backache. C. M. Cooper, San Francisco.

147. **Tuberculous Meningitis.**—The diagnostic points which in Ebright's opinion are too frequently overlooked in the performance of lumbar puncture in tuberculous meningitis are the following: 1. The intraspinal pressure is high in the irritative stages. Its measurement should be made with a mercury manometer, in view of the inaccuracy of other methods. 2. The fluid is usually clear or slightly turbid, and may present a fine filmy coagulum on standing several hours. This coagulum is highly characteristic. 3. The albumin content is high. It may even be 0.7 per cent., and is usually about 0.2 per cent. 4. As in all meningitides, Fehling's reagent is apt not to be reduced. 5. Tubercle bacilli can be found in from 30 to 50 per cent. of the cases and always after death in the spinal fluid. 6. Lymphocytosis is usually present in the fluid, except in the later stages, when polynuclear cells may predominate, possibly on account of a mixed infection, though more likely because that protective function represented by the multiplication of the lymphocytes in tuberculosis and tuberculin reactions has been overcome and lost.

148. **Brain Tumor.**—An interesting case of brain tumor is reported by Bush, occurring in a man aged 24, as the result of an injury. While engaged in pulling a truck, his arms were violently twisted. He immediately noticed a faintness and numbness in the right side of the face, followed by an occasional twitching of that side. The next day on attempting to lift a weight he had another fainting seizure; his face pulled to the right again, and he had some clonic convulsions of the facial muscles. His right arm also curled up, with a flexing of the fingers and wrist and there was a numbness of the arm extending to the shoulder. Since that time the attacks have occurred every eight or ten days, the arm and finally the leg becoming progressively weaker. Some light epileptiform attacks in the leg developed ten days after the injury. There was some difficulty in pronouncing words. There was occasional headache, but no vomiting, before his entry to the hospital. The man walked with a slightly hemiplegic limp on the right side, and the right side of his face seemed to be slightly paretic. The muscular movements of the right arm and leg were also weaker than on the left side, the reflexes were increased, except the right epigastric, which was decreased. The most striking feature at this time was the complete astereognosis, the man being unable to recognize the nature of any body placed in his right hand. At this time there was no atrophy of the muscles of the right side of the body. The main motor disturbance was in the right arm, the muscles of the leg being slightly involved. There was no Babinski reflex and no clonus. Examinations of the chest, abdomen, urine and blood were negative. Even at this time there were slight disturbances in sensation of the right forearm and hand, patient being unable accurately to localize pinpricks, and there being a definite hypalgesia on the dorsum of the right hand. No disturbance of temperature sensations. The symptoms steadily progressed, until two months later his whole right side was almost completely paralyzed, paralysis being of the spastic type. The man could walk only by following the wall about to his right and supporting himself by it. The reflexes were greatly increased, there being a Babinski reflex, ankle and knee clonus, while the epigastric reflex on the right was abolished. The left side of the body remained practically normal. The muscles had begun to waste on the right side. The astereognosis was absolute. The other sensory disturbances were more marked than before. Sweating on the right side was constant, and muscular twitching on the same side developed. At this time examination of the eye grounds disclosed a bilateral optic neuritis, becoming progressively worse from the first examination, a month after admittance, until on the day before operation a choked disc was present. At this time the left pupil was larger than the right, and the extent of the optic neuritis was greater on the left side than on the right. There was difficulty in getting food out of the right cheek. Percussion of the skull gave an apparently higher pitched note on the left side. The question of diagnosis lay between a functional or hysterical condition and an organic lesion involving, to all appearances, the left motor cortex. A few days preceding operation the rapid increase of the choked disc, accompanied by occasional vomiting, and the accentuation of the paralysis pointed strongly to the presence of a real lesion. A decompression operation was done and disclosed a mass under the precentral and postcentral convolutions. Following this the man's condition improved remarkably except the astereognosis, which remained unchanged. Gradually, however, with the increase of the brain hernia, the old symptoms recurred. At a second operation a cyst was found in the region occupied by the mass, was evacuated, and improvement followed. Repeated evacuations were always followed by an improvement in the patient's condition. A slight paralysis and spastic gait are the only evidence of the disease now present.

151. This article appeared in the *Chicago Medical Recorder*, May, 1909, and was abstracted in THE JOURNAL, June 19, 1909, p. 2024.

Journal Arkansas Medical Society, Little Rock

June

153 Duty of Imparting to the Public Knowledge Concerning Preventable Diseases. J. T. Clegg, Siloam Springs, Ark.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London

June 26

1 *Pneumococcus Invasion of the Throat. Sir F. Semon.
2 Acute Pneumococcus Infection of the Pharynx. J. Elliott.
3 *Therapeutic Value of Pneumococcus Vaccine in Pneumonia. A. B. Harris.
4 Radioactivity and Carcinoma. W. S. Lazarus-Barlow.
5 Treatment of Volvulus. R. Mowbray.

1. **Pneumococcus Invasion of Throat.**—Semon adds one case of pneumococcus invasion of the throat to the two cases recorded thus far. The case terminated fatally owing to tuberculosis supervening on the original infection. The patient complained of unpleasant sensations in the throat, which were referred to the region of the lingual tonsil. The lingual tonsil was found to be distinctly swollen, and was treated with applications of a solution of iodin and potassium iodid (Lugol's solution). After a few applications the swelling decreased, and the patient for a few days felt better. He returned, complaining of distinct pain in the left side of his throat. An irregular superficial small ulcer, surrounded by a small area of whitish discoloration, was seen in the lateral wall of the throat, just opposite the last molar, and in its neighborhood a few small irregular spots of white infiltration, but without loss of substance, were visible. The ulcer was not bigger than a split pea. It was cauterized with a weak solution of chromic acid and, as this proved of no avail, with a solution of nitrite

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of silver (60 grains to the ounce). For a time these applications afforded relief; usually, however, within a few days after disappearance of the ulcer, it reappeared, sometimes with, sometimes without, a whitish infiltration in its neighborhood. No enlargement of cervical glands was ever present. A scraping from the ulcer showed an almost pure pneumococcus culture. Despite local applications, curettage, and vaccine injections, the patient's condition rapidly became worse. Multiple ulcers made their appearance, together with edema of larynx, pulmonary consolidation, and extreme emaciation. The patient died about seven months after the onset of his trouble.

3. **Pneumococcus Vaccine in Pneumonia.**—Harris says that it may be taken as a clinical fact that in pneumonia death usually takes place through failure of the heart. Particularly obvious is this in the cases of virulent pneumonia, where death occurs about the fourth day of the disease. With regard to treatment of acute pneumonia by inoculation, he concludes that: (1) Successful inoculation for pneumonia is possible; (2) inoculation does no harm; (3) a vaccine from one or a number of virulent strains should be used; (4) it should be introduced as early as possible; (5) the estimation of the opsonic index is not necessary; (6) the observation of the temperature and physical signs is in pneumonia a sufficient guide in gauging the repetition of the dose. Infections of the lung by the pneumococcus which fail to resolve after an acute pneumonia, as well as pneumococcic infections of other areas, ought certainly to be treated with a pneumococcus vaccine; and these cases appear to afford a reasonable prospect of success.

Lancet, London

June 26

6 *Radioactivity and Carcinoma. W. S. Lazarus-Barlow.
7 Gastrointestinal Crises from Effusion into the Intestinal Wall. G. A. Sutherland.
8 Acute Mastoiditis, with Lateral Sinus Suppuration and Cerebellar Abscess as Complications of the Operation for the Removal of Tonsils and Adenoids. L. A. Parry.
9 Oral Sepsis in Connection with Throat Disease. G. I. Stewart.
10 Primary Sarcoma of the Duodenum. H. M. Mackenzie.
11 *Inherited Tachycardia. J. Kirkland.
12 *Effect of Diphtheria Antitoxin on the Tuberculo-Opsonic Index. A. G. Banks.
13 Missed Labor. P. McEwan.
14 Hydroa Gestationis. E. Ward.
15 Difficulties, Direct and Indirect, in Diagnosis, and Remarks on Treatment of Certain Forms of Deafness. R. Lake.
16 Hair-Ball in the Stomach. G. P. Newbolt and R. A. Jones.
17 Wound Diphtheria. R. Herley.
18 Medicolegal Evidence in a Case of Sudden Death. G. E. Wherry.

6. Published also in the *British Medical Journal*, June 26, 1909.

11. **Inherited Tachycardia.**—In Kirkland's report both grandmothers, the father, the mother, the aunt, four out of six daughters, the three sons, and at least one niece were, or are, victims of heart lesions. The trouble did not show itself to any appreciable degree in most of these cases until at least early adult life. The heart beats in Kirkland's case were between 220 and 240; they were difficult to count owing to the irregularity. Dyspnea was most distressing, increased by the cough and any slight exertion, even eating or drinking. The voice was much affected, amounting at times to aphonia. There were great abdominal discomfort and flatulent dyspepsia. The patient had to be propped up in bed, and was most comfortable and easy in this position and the dyspnea was less severe. The attack came on suddenly after a walk that was beyond his strength and lasted twenty-eight hours, passing off as quickly. A hypodermic injection of strychnin, together with a mixture containing apomorphin hydrochlorid (1/16 grain), caffein hydrobromid, etc., seemed to cut the attacks short.

12. **Effect of Diphtheria Antitoxin on Tuberculo-Opsonic Index.**—Banks found that in healthy subjects the effect of diphtheria antitoxin on the tubercle index is small, and it is quite possible that the larger variations are due to some hidden tuberculous lesion. In the majority of cases there is a definite rise in the tuberculo-opsonic power shortly after the injection of antitoxin; and during some few weeks after this a somewhat low index to the tubercle bacillus is the rule. Also, these effects are independent of the quantity of antitoxin administered and probably of the age of the patient.

Medical Press and Circular, London

June 16

19 Treatment of Bronchopneumonia. E. Cautley.
20 Recent Researches on the Function of the Non-Auditory Ear. R. H. Woods.
21 *Nature of Vomiting after Anesthesia, with Suggestions for its Treatment. J. Blumfeld.
22 The State and Other Relationships of Modern Dental Surgery. H. R. F. Brooks.

21. **Treatment of Postanesthetic Vomiting.**—The most rational way to treat and prevent nausea and vomiting after anesthesia, according to Blumfeld, appears to be to promote in every way the elimination of the circulating anesthetic. That is to say, the patient should be kept warm so that the skin may act freely, and renal secretion should be helped. For this purpose saline enemata are of great value, and one should be introduced slowly as soon as the patient is back in bed. In some hands large quantities of saline solution are introduced under the skin slowly and for long periods of time after severe operations, and it is claimed that not only is shock diminished in this way, but after-vomiting is much less frequent. While elimination is thus going on, the less put into the stomach the better. There is no call for anything at all except through thirst, and this gives little trouble if enemata or subcutaneous injections are used. Washing out the mouth with lemon juice and water is pleasant for the patient, and helps to allay feelings of thirst. Preventive treatment with glucose, based on chemical theories explaining delayed chloroform poisoning, has been given a trial at St. George's Hospital; the results do not show any marked alteration of the ordinary percentage of cases of after-sickness.

Clinical Journal, London

June 16

23 Comparison of Cancer of the Lips and Cancer of the Labia. J. Bland-Sutton.
24 Hemiplegia. S. West.
25 *Hemoptysis and its Treatment. J. E. Squire.

25. **Treatment of Hemoptysis.**—Squire presents an admirable synopsis of the treatment of pulmonary hemorrhage. If the smallest amount of blood staining is noticed in the sputum it should be looked on as a danger signal, and the patient ought at once to be put to bed. Calomel gr. ij, iij, or iv, should be given, depending on the patient, followed in the morning by 3j or more of magnesium sulphate; if necessary, this may be repeated in the day. The patient remains in bed for a couple of days, taking the magnesium sulphate each morning, and if no more staining appears he is allowed to get up, beginning with two or three hours the first day. If the staining continues while the above treatment is given, the amount of milk may be reduced to one pint daily and the patient is, of course, kept in bed till the sputum is clear for at least three days. Acute hemoptysis is treated by propping up the patient in bed. Amyl nitrite, minims 10 to 15, is inhaled. In a slight hemorrhage this is usually sufficient. Smaller amounts than 10 minims do not usually have much effect. In larger hemorrhages, particularly when the nose gets blocked up with blood, it may be necessary to put from 30 to 60 minims on a piece of lint and hold it over the patient's mouth. In some cases, this has been repeated, and the only complaint the patient made was that it produced a feeling of nausea. Turpentine (m. xxx to lx) may be used as an inhalation when amyl nitrite is not at hand, or spirits of turpentine (m. x to xxx) may be given internally and repeated. Morphin has been given with good results in slight cases; its action is probably due to the relief of anxiety from the sedative, with consequent quieter action of the heart. Adrenalin (m. v of a 1 to 1,000 solution) has been injected. It is said to be useful in cavity cases where it is likely that the hemorrhage is due to the erosion of a medium-sized vessel. On the other hand, it is said to be contraindicated when the hemorrhage is from a ruptured vessel, but is useful in congestive hemorrhage. It should be a general rule that when the hemorrhage is large and the cavity is known to be present, the patient should be made to lie on the side on which the cavity is located. Subsequent to acute hemorrhage the patient is kept in bed, if possible, propped up a little. Purgatives are given, beginning with calomel (gr. ij to iv), followed by magnesium sulphate.

one, two or three times daily; the amount and time must depend on the patient's condition. Milk, one pint, must be given in twenty-four hours, and all other fluid cut off as much as possible, and the patient fed on solids. In some cases calcium lactate, gr. xv, has been given thrice daily for three days and then omitted for three days, and so on. Or calcium chlorid (gr. x to xlv) in water or milk, every four or six hours, may be given in a similar manner. These calcium salts increase the coagulability of the blood and thus tend to check hemorrhage. It is not wise to examine the chest too fully nor too frequently during or immediately after an attack of hemoptysis.

Journal of Tropical Medicine and Hygiene, London

June 1

26 Schistosomiasis in Bahia, Brazil. P. de Silva.

Practitioner, London

June

27 Bearings of Pathology on Prevention, Diagnosis, and Surgical Cure of Carcinoma of the Cervix. V. Bonney.
28 Treatment of Simple Fractures. R. P. Rowlands.
29 Phthisis: Its Diagnosis and Treatment. W. Broadbent.
30 Hypertrophy of the Prostate, and its Operative Treatment. H. Collinson.
31 Cerebrospinal Fever. F. E. Larkins.
32 Diseases of Children. J. H. Thursfield.
33 Bacterial Vaccines and Rational Immunization. E. C. Hort.
34 First Three Weeks of Pregnancy: Practical Bearing of Recent Investigations on our Knowledge of Ectopic Gestation. J. Phillips.
35 Points of Medical Interest in New Children's Act. L. A. Parry.
36 *Meat as Source of Infection in Tuberculosis. A. R. Litteljohn.
37 Clinical Aspects of Cases Accompanied by Increased Blood Pressure. H. O. Butler.

36. Infection in Tuberculosis.—This subject is discussed at some length by Litteljohn, and he endeavors to show (1) that man can contract tuberculosis from cattle, but that, considering the difficulty experienced in transmitting human tuberculosis to cattle, we may, perhaps, assume that the transmission of bovine tuberculosis to man is also difficult to effect; (2) that infection of man with tuberculosis is not commonly caused by ingesting meat, since it requires the swallowing of large numbers of tubercle bacilli to be effective; (3) that the flesh of tuberculous animals (even in generalized tuberculosis) is rarely infective, except as a result of postmortem contamination; (4) that the ordinary processes of cooking, in the majority of cases, are sufficient to render the contaminated meat non-infective; (5) that during a period, in which the consumption of meat by man has increased in quantity, human tuberculosis has declined (British Royal Commission). Litteljohn believes that we may justly infer, therefore, that, to the community at large, the risk of contracting tuberculosis by eating the meat of tuberculous animals is not so great as is generally believed; but that this risk is greater than it should be, owing to inefficient methods of inspection. This perfect inspection particularly concerns those who buy cheap meat, and eat such commonly infected organs as the lungs, udder and mesenteries.

Australasian Medical Gazette, Sydney

May

38 Prevention of Pelvic Disease in Women. D. Hardie.
39 Treatment of Syphilis, Based on a Year's Work at the London Lock Hospital. J. S. Purdy.
40 Serodiagnosis of Syphilis. Drs. Butler and Flashman.
41 Internal Derangements of the Knee Joint, with Report of Two Cases with Successful Operation. C. E. Todd.
42 Infective Infantile Ileocolitis. H. S. Bush.
43 State Medical Inspection of School Children. J. H. Cumpston.

Glasgow Medical Journal

June

44 State of Education in British and Irish Schools for the Deaf. J. K. Love.
45 *Possible Incipient Addison's Disease. J. S. M'Kendrick.
46 Radium in Dermatology. J. G. Tomkinson.

45. Incipient Addison's Disease.—McKendrick reports the case of a woman, aged 37, who complained of cough with expectoration and general weakness. There was a very striking pigmentation of the skin. The color was yellowish brown, and affected chiefly the forehead, neck, hypochondriac and abdominal regions in front, and the infrascapular and lumbar regions behind. The arms were uniformly pigmented from the shoulder to the metacarpophalangeal joints. There was an entire absence of pigment over the clavicular and mammary regions in front, and the suprascapular region behind. Scattered here and there through the pigmented areas are patches varying in size from a lentil to a walnut, of clear pearly skin. The pigmented areas were not raised above the surface, nor were they affected by scraping with the nail or sharp instrument. The thighs and legs were free from pigment. The pigment was more marked over the areolæ and axillary regions. There was evidence of consolidation over the left apex, where there is relative dulness to percussion, diminution of respiratory murmur, some tubularity, and a few dry and moist râles. The lungs were otherwise normal. The symptoms in their order of development were pigmentation of the skin, great weakness accompanied by breathlessness, cough with expectoration, anemia, and lastly, a tendency to diarrhea. The pigmentation commenced almost a year before the asthenia and cardiovascular symptoms, and some little time before her last pregnancy. The question arises whether one is justified, from the symptoms of pigmentation, asthenia, gastroenteritis, tuberculosis and splenic enlargement with normal blood count, in supposing (without postmortem examination) that this patient suffered from Addison's disease. Is it more likely that the primary disease is chronic pulmonary tuberculosis, with splenic enlargement, pigmentation, weakness, etc., as secondary manifestations or accompaniments of this toxic process? Is there leukodermia associated with this peculiar Addisonian pigmentation, and if so, is leukoderma a frequent accompaniment of Addison's disease?

Journal Laryngology, Rhinology and Otology, London

June

47 Experiences in the Direct Examination of the Larynx, Trachea and Esophagus. A. B. Kelly.
48 *Indications for and Results of Operative Treatment of Purulent Otitis Media, Including the Simple and Radical Mastoid Operation. W. C. Phillips.

48. Abstracted in THE JOURNAL, Feb. 20, 1909, p. 654.

Archives de Médecine des Enfants, Paris

May, XII, No. 5, pp. 321-400

49 Buttermilk in Infant Feeding. (De l'alimentation des nourrissons avec le babeurre.) G. Jacobson (Bucharest). Commenced in No. 4.
50 Incessant Crying as Symptom of Inherited Syphilis. (Les cris incessants comme symptome de l'heredosyphilis.) C. Ferreira.
51 *Warmth for the Prematurely Born without an Incubator. (Rechauffement des débiles par un procédé nouveau.) J. Comby.

June, No. 6, pp. 401-480

52 Pathogenesis of Congenital Inspirational Stridor. J. von Bokay.
53 Tuberculous Peritonitis in Infants. E. Weill and M. Pehn.
54 *Roentgen-Ray Treatment of Tuberculous Peritonitis. (Nouvelles recherches cliniques et hématologiques sur la péritonite tuberculeuse traitée par les rayons Roentgen.) G. B. Allaria and G. Rovere.
55 Prostitution in Minors. (La prostitution chez les filles mineures. Ses causes. Ses remèdes.) H. Dauchez.

51. Warmth for the Prematurely Born without an Incubator.—Comby quotes with approval Dufour's suggestion to wrap the child, all except the head, in oiled silk, to shut off all contact with the external air. This maintains an even temperature and allows the incubator to be dispensed with. Tibone uses the same for wrapping parts affected with sclerema, and has thus treated 19 infants, curing 7, with 4 much improved. The oiled silk prevents chilling, raises the temperature and keeps it even and softens the subcutaneous fat in the sclerema, while the local circulation is stimulated.

54. Roentgen-Ray Treatment of Tuberculous Peritonitis.—Allaria and Rovere have had experience with seven cases, and their conclusions are that Roentgen treatment should be restricted to the form with ascites and that it must be suspended at the slightest sign of intoxication or aggravation. Owing to the difficulty of detecting these signs, the method should be regarded as still in the experimental stage. Their experience on the whole was unfavorable.

Revue de Chirurgie, Paris

June, XXIX, No. 6, pp. 1023-1290

56 Tuberculous Elephantiasis. (A propos d'un cas d'elephantiasis tuberculeux de la vulve.) E. Forgue and G. Massabuau.
57 Exostoses of the Calcaneum. P. Reclus and A. Schwartz.
58 Cancer of the Bile Ducts. (Traitement chirurgical du cancer des voies billiares.) G. Cotte.

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59 Resection of Intestine with Strangulated Hernia. X. Delore and C. Thevenet.
60 *Reanimation of the Heart. (La réanimation du cœur.) P. Mocquot. Commenced in No. 4.

60. Reanimation of the Heart.—Mocquot reviews the various cases on record and adds some hitherto unpublished cases, including some from his own experience, and experimental research. He compares the experimental findings and the clinical results, the mode of action of each method, the causes of failure and the conditions for success. Of all the direct procedures massage has been the most frequently used and has given good results in many instances, especially in chloroform syncope. The best mode of access is through the abdomen. While massage with access through the chest in 21 cases has given 2 complete and 5 partial successes, there have been only failures recorded in the 10 cases of massage with access through the diaphragm, but in the 22 cases of massage in which the heart was manipulated from below the diaphragm, success was complete in 9 cases and partial in 6 others. The diaphragm was too taut in 3 cases; it might be relaxed by raising the pelvis, which has also the advantage of sending the blood into the upper part of the trunk. The heart is often so flabby that it can not be felt through the diaphragm, but after a few compressions it regains its consistency under the subdiaphragmatic massage. Another possible cause for difficulty in massaging the heart is an effusion in the pericardium. He has witnessed a case of this kind in a collapse at the end of an operation; after failure of the ordinary measures Delbet tried to massage the heart, but the diaphragm was so tight that this was impossible. An incision was made through the diaphragm and the pericardium, allowing the escape of a serous fluid; the existence of this complication jeopardizes the success of measures for reanimation. Mocquot asserts that it is not necessary to take hold of the heart to apply effectual massage; it is not only easier, but it is more effectual merely to compress the ventricle against the wall of the thorax by means of the hand introduced flat behind the heart. He reports a case in detail which demonstrates beyond question the utility and ease of this mode of massage which can be done readily through the diaphragm without necessity for incising it. Butruille succeeded in massaging the heart in a new-born infant without any incision, merely working two fingers under the false ribs on the left, thus seizing the heart between the two fingers and the thumb on the precordial region, but this method is applicable only for the new-born. While the massage is being applied, artificial respiration should be kept up to relax the diaphragm. The Silvester method interferes with the massage; the best technic is by direct insufflation with a tube. The rhythm of the compression of the heart should approximate the normal rate, that is, it should be about 60 a minute. The ventricles fill up as the compression is released, but sometimes this occurs so slowly that the rhythm has to be made slower. The massage acts as a mechanical stimulant, favoring the emptying of the heart, and setting up an artificial circulation. It is possible, he declares, that the maneuvers for artificial respiration owe part of their efficacy to their action as a kind of massage on the heart. Mocquot noted that the tint of the skin became pinkish during the compression; in one case there was a strong radial pulsation at each compression of the heart. In the majority of cases of chloroform syncope the heart is almost empty and it is important to supply the heart with more blood; this is one reason why massage from below the diaphragm is more effectual than massage after the chest is open. This creates a pneumothorax and thus puts an end to thoracic aspiration. The greater the pressure at the starting point of the coronary arteries, the better the myocardium will be irrigated; some have even advised compression of the abdominal aorta. The artificial circulation from the rhythmic compression acts both on the heart centers and on the myocardium; Cyon has revived the heart by merely irrigating the nerve centers with oxygenated blood. The causes of the failure of the massage have been pneumothorax, inadequate artificial respiration or blood pressure, organic changes or fibrillar tremulation. He gives the details of the total 53 cases of massage of the heart for chloroform syncope or traumatism of the heart or asphyxia, embolism or diphtheria, including a number of cases reported in America. In conclusion, he reviews the publications on Crile's and Spina's methods; the latter is the injection of serum against the current. In chloroform syncope massage has great chance for success when it is commenced not later than fifteen minutes after the arrest of the heart, and especially when it is not necessary to make a new operative trauma for it; it seems more effectual in tardy toxic syncope than in the initial reflex syncope. Adrenalin is a valuable aid in stimulating the heart to contract; it may be employed alone or associated with massage. Intravascular injections of serum not only raise the blood pressure, but dilute the blood and thus are indicated in all syncopes of toxic nature. In chloroform syncope the Silvester artificial respiration should be commenced at once; in cases of initial "white" syncope, insufflation of the lungs through the laryngeal tube, supplemented by massage of the heart, are the urgent indications. In tardy syncope, if the abdomen is already open, the above measures should be supplemented by intravenous injections of serum and of adrenalin. If the heart is not easily accessible, it is better to follow Crile's technic or Spina's, on condition that some artery not a branch of the carotid or of the left subclavian, is readily accessible and can be injected with Locke's fluid. In asphyxia, it is more difficult to revive the heart action, and, besides the massage and insufflation of the lungs, intravenous injections of serum and adrenalin are required. In a traumatism of the heart intracardiac injections of isotonic serum, combined with massage, seem the most promising method. The work should always be done with system, not haphazard. The article concludes with nearly three pages of titles of articles on this subject.

Revue de Gynécologie, Paris

XIII, No. 2, 179-368. Last indexed May 8, p. 1848

61 External Masculine Pseudohermaphrodism coinciding with Sarcoma of Ovary. P. Begouin.
62 *Retrouterine Hematocele from Rupture of Small Blood Cyst in the Ovary. F. Jayle.
63 *Gastro-Cutaneous Fistulas Consequent on Gastric Ulcer. I. F. Jeannel.

62. Retrouterine Hematocele from Rupture of Blood Cyst.—Jayle analyzes 126 works in the literature from which he has collected 14 cases similar to the 3 personal ones reported, in which rupture of a small blood cyst in the ovary resulted in a retrouterine hematocele. In treatment he left the apparently sound ovary in his cases, but he always regretted it later, as it proved pathologic, and a second operation had to be done. Consequently, he concludes that hemorrhagic ovaritis is constantly bilateral, and double oöphorectomy is indicated.

63. Gastrocutaneous Fistulas Consequent on Gastric Ulcer.—Jeannel classifies and summarizes 50 cases of fistula consequent on a gastric ulcer, including 2 from his own experience. The youngest patient was 13; the others were over 20. The gastric ulcer had caused symptoms for an interval ranging from fifteen months to thirty years before the fistula developed. In 20 cases there was no escape of pus when the fistula occurred, but in 17 this was noted. It is evident that suppuration is sometimes the cause, but in the majority the fistula is the result of necrosis of the inflamed tissues, destroyed by the gastric juice, and this same factor militates against successful operative closure of the fistula. It generally becomes more and more incontinent, and the patients, with good appetite to the last, die of inanition unless relieved by an operation. A few of the patients were in good health three and five years after the development of the fistula, but these are the rare exceptions, although Wencker's patient lived twenty-seven and Rouilly's eight years.

Presse Médicale, Paris

June 12, XVII, No. 47, pp. 425-432

64 *Early Total Resection of Varicose Veins. (Résection totale précoce des varices essentielles superficielles des membres inférieurs.) P. Alglave.
65 Experimental Typhoid. (Dothiénentérie expérimentale.) J. Milhit and E. Chabrol.

June 16, No. 48, pp. 433-440

66 Oösporoses. (Les actinomycoses, les oösporoses et la tuberculose.) H. Roger.

64. Early Total Resection of Varicose Veins.—Alglave gives fifteen illustrations to show the technic and ultimate results in three cases in which he removed the main trunk of the superficial saphenous vein and as much of its branches as pos-

sible. The results have been the complete cure of the condition which had almost totally incapacitated the patients for years. He advises early intervention without waiting for leg ulcers to develop, operating when the patient first begins to find the condition painful and the pain warns of impending severer trouble. Total resection of the vein trunk at this stage is a simple and easy operation, he declares, free from danger, and yielding most excellent results. He carries the incision from the groin to the ankle, outlining a long spindle-shaped island in the center, which is cut out to draw the skin tighter around the leg as it is sutured.

Semaine Médicale, Paris

June 16, XXIX, No. 24, pp. 277-288

67 Symptomatic Importance of Segmented Sensory Disturbances in Brain Lesions. (Valeur sémiologique des troubles de la sensibilité à disposition radiculaire dans les lésions de l'encéphale.) J. Lhermitte.

June 23, No. 25, pp. 289-300

68 *Hemorrhagic Complications of Influenza. (Les hémorrhagies post-grippales.) L. Cheinisse.

68. Hemorrhages Following Influenza.—Cheinisse cites eight cases—including three in his own practice—of severe epistaxis or hemorrhage in the stomach or brain at the onset or during the course of influenza or within seven months of it in patients otherwise free from a hemorrhagic tendency before or since. These experiences emphasize the necessity for supervising the condition left after influenza, prescribing tonics and other measures as indicated. All but one of the eight patients were women.

Archiv für Gynaekologie, Berlin

LXXXVIII, No. 2, pp. 217-416. Last indexed May 22, p. 1724

69 Importance for Differential Diagnosis of the Plasma Cells in Suppurative Inflammation in the Uterine Adnexa. J. W. Miller.

70 Technic of Schauta's Operation for Prolapsus Uteri. F. Lichtenstein.

71 Bacteriologic Examination of Genital Secretions During Confinement. (Bakteriologische Untersuchungen der weiblichen Genitalsecrete während der Entbindung und des Wochenbettes, mit besonderer Berücksichtigung der Frage von der puerperalen Selbstinfection.) W. Wegelius.

72 The Bladder During Childbirth. (Die Harnblase während der Geburt.) E. Martin.

Correspondenz-Blatt für Schweizer Aerste, Basle

June 1, XXXIX, No. 11, pp. 361-400

73 *Preparation and After-Care of Surgical Patients. (Vorbereitung und Nachbehandlung bei chirurgischen Operationen.) E. Kummer.

74 Ankylostomiasis. O. Henggeler.

73. Preparation for and Care After Surgical Operations.—Kummer reviews his experiences with 315 laparotomies. He devotes special attention to the 108 cases in which there were complications or delay in healing, urging the necessity for improving the present technic of anesthesia and the after-care. He insists on an abdominal bandage to be worn for three months after the laparotomy, especially for people who are constipated or suffer from respiratory catarrhal affections or of whom much physical effort is required.

Deutsches Archiv für klinische Medizin, Leipsic

XCVI, Nos. 3-4, pp. 217-518. Last indexed June 12, p. 1962

75 Case of Lymphadenoma of the Mediastinum with Hypertrophic Osteoarthropathy. F. P. Weber and J. C. G. Ledingham.

76 *Acute Myeloid Leukemia. F. Port.

77 *Pathogenesis of Pernicious Anemia. F. Berger and I. Tsuchlya.

78 *Paroxysmal Hemoglobinuria. E. Meyer and E. Emmerich.

79 *Treatment of Obesity with Exclusive Milk Diet. (Entfettungskuren durch reine Milchdiät.) M. Hedinger.

80 Persistent Absolutely Irregular Heart. (Zur Kenntnis der Arythmia perpetua.) E. Magnus-Alsleben.

81 Case of Kala-Azar from Asiatic Russia. (Fall von Kala-azar aus Taschkent in Wien.) E. Sluka and M. Zard. Id. E. Rach and M. Zard.

82 Hemolytic Substances in Ether Extract of Stools with Ulcerative Processes in the Intestines. (Vorkommen hämolytisch wirkender Stoffe im Aetherextrakt der Fäces bei ulcerativen Prozessen des Darms.) E. Grafe and W. Röhmer.

76. Acute Myeloid Leukemia.—The findings in the case reported indicate a myeloblast leukemia. The patient was a man of 41 and the disease ran its fatal course in less than four months.

77. Pathogenesis of Pernicious Anemia.—This communication from Schmidt's clinic at Halle reports much experimental research, especially with the extract of the gastrointestinal mucosa after death from pernicious anemia and with the mucosa from dogs with gastrointestinal affections. The extract of the mucosa under certain conditions had a pronounced hemolytic action. It seems probable that an inflammatory infiltration in the gastrointestinal mucosa plays an important part in the development of pernicious anemia. The inflammatory catarrhal process leads to the production of an intensely hemolytic lipoid substance. That every catarrhal affection is not accompanied by anemia is due to the compensating action of the bone marrow which replaces the destroyed blood corpuscles as fast as they are destroyed. The process has to be very severe or very long continued to result in a pernicious anemia.

78. Paroxysmal Hemoglobinuria.—Meyer and Emmerich's views in regard to the origin of paroxysmal hemoglobinuria have been already mentioned in these columns. They think it is now established that in all certain cases of paroxysmal hemoglobinuria a complex hemolysin is present in the blood which does not act unless it has been chilled and afterward rewarmed again to body temperature. This autohemolysin was demonstrated in the four cases described.

79. Exclusive Milk Diet in Treatment of Obesity.—Hedinger gives the metabolic findings in five persons restricted to less than a quart of milk a day, the Karell cure, advocated in treatment of obesity. The deficit in nitrogen was found greater than hitherto supposed, and there was retention of salt, his opinion on the whole being that it is possible to find a more rational method of underfeeding which, with the same small numbers of calories, will still supply sufficient albumin and maintain the nitrogen balance undisturbed. Possibly the Rosenfeld-Richter potato diet may answer the purpose better.

Deutsche medizinische Wochenschrift, Berlin

June 10, XXXV, No. 23, pp. 1001-1048

83 Close Connection between Condition of Tension of Muscles and Pupil Disturbances. (Weitere Beobachtungen über im katatonischen Stupor beobachtete Pupillenphänomene nebst einem Erklärungsversuch der "katatonischen Pupillenstarre.") A. Westphal.

84 Korsakow's Psychosis as Result of Concussion of the Brain. (Zur Kenntnis der akuten traumatischen Psychose.) O. Aronsohn.

85 *Hysterical Pseudopalsy. (Pseudoparalysis agitans hysterica.) Müller de la Fuente.

86 Cellular Pathology in Origin of Infectious Diseases. (Die Theorie der Infektionskrankheiten.) W. Dibbelt.

87 *Natural Resistance to Tuberculin. M. Pickert.

88 *Superiority of Hot Oil for Sterilization of Instruments, etc. (Neues Sterilisierungsverfahren.) H. Conradi.

85. Hysteric Pseudoparalysis Agitans.—The patient in de la Fuente's case was a well-to-do English spinster of 28 who had lost her mother from progressive paralysis agitans and who dreaded its appearance in herself, as she had heard that it was a hereditary and contagious disease. She developed the typical syndrome on the right side, with the gait and stoop of her mother. The physician first consulted diagnosed hysteria, which disgusted her so that she did not consult a physician again for years. Then a persevering course of encouraging suggestion restored her confidence and soon cured her completely; there has been no relapse during the three years since.

87. Natural Resistance to Tuberculin.—Pickert refers especially to the cases of pulmonary tuberculosis in which, notwithstanding the presence of bacilli in the sputum, the general health keeps good and the earning capacity is not reduced. This may be due to some special structure of the lung preventing the bacilli from spreading, or it may be the result of some special resisting power on the part of the body maintaining a high immunity to the toxin secreted by the bacilli. The serum from patients in this second group is able to neutralize the tuberculin used for the cutaneous test so that injection of the mixture causes no reaction, while the controls all show a pronounced reaction. In these exceptionally resistant cases, injections of tuberculin also show augmented resistance to the tuberculin. The substance in the blood serum of untreated patients which thus neutralizes the tuberculin becomes apparent also in tuberculous patients under tuberculin treatment—a striking proof, he thinks, that Koch's tuberculin therapy induces, in the best sense of the word, a natural healing process, imitating the healing processes of Nature.

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88. **Hot Oil for Sterilising Instruments.**—Conradi calls attention to hot oil as the most certain means of destroying all germ life on instruments and catheters; it is much more effectual than boiling water. The vessel holding the oil is heated to 200 C. (392 F.) or over, and then set in a vessel of cold water to cool, and the instruments are soon ready for use, without the possibility of harm, while the hands are lubricated with the oil, but not rendered slippery. As the boiling point of oil is above 300 C., there is no loss of oil below this and the supply can be used over and over again for the purpose.

Deutsche Zeitschrift für Chirurgie, Leipsic

May, XCVIII, No. 6, pp. 503-579

89 *Omental Tumors due to Adhesive Inflammation or Preceding Operations. (Ueber im Anschluss an Bauchoperationen und Entzündungen der Bauchorgane vorkommende entzündliche Geschwülste des Netzes—Epiploitiden.) D. G. Zesas.
90 Volvulus of Entire Small Intestine and Ascending Large Intestine with Common Ileocecal Mesentery. Blecher.
91 Two Cases of Solitary Kidney Successfully treated with Decapsulation and Incision. (2 Fälle von einseitiger Niere, wegen hochgradiger Beschwerden behandelt mit Entkapselung und Sektionsschnitt.) C. Lauenstein.
92 *Compression from the Thymus. (Zur Druckwirkung der Thymus.) Denecke.
93 *Clinical and Experimental Study of Momburg's Technic for Expelling Blood from Lower Part of Body. (Zur Frage der Momburgschen Blutleere.) H. Rimann and W. Wolf.

89. **Omental Tumor from Adhesive Inflammation.**—Zesas summarizes 44 cases from the literature, all but 8 of postoperative origin. The epiploitis generally subsides under bed rest or wet packs and inunction of potassium or mercurial ointment. In a few exceptional cases the epiploitis led to peritonitis or other fatal complication.

92. **Pressure from the Thymus.**—Denecke reports a case in which the large thymus compressed the vein trunks, causing attacks of syncope. The patient was a boy of five cured by resection of part of the thymus on each side. The supraclavicular fossa on each side protruded as the child cried and the veins in the neck swelled to finger-thick cords, while there was very little stridor during inspiration. He reviews the similar cases in the literature.

93. **Momburg's Method of Expelling Blood from the Lower Part of the Body.**—This method of hemostasis has been studied experimentally and in the clinic by Rimann and Wolf, who call attention to the effect on the pulse of this circular compression of the trunk. The constricting belt causes the blood pressure to rise; if the heart is healthy it can stand this high blood pressure without damage, and all is well, but if the heart yields and becomes dilated there is danger of irremediable collapse. They warn that this new method should be applied only when the heart can be relied on. A healthy young heart can stand it, but it should not be used in arteriosclerosis or valvular defects, even if well compensated. In the two clinical cases reported, the belting technic for constriction had been applied for an operation for rectal cancer. In the first case the belt was applied during the operation to arrest the excessive bleeding, which it did at once. The pulse continued strong for nearly two minutes, then grew weaker and became imperceptible by the fifth minute, the patient going into collapse. The belt was at once removed, when the patient revived and the operation was completed. The patient, a man of 70, with moderate arteriosclerosis, died four weeks later of pneumonia. In the other case the patient was a woman of 42 with normal findings in the thorax, the belt was applied before the operation, the blood pressure 115 mercury. The pressure dropped to 85, then to zero in two minutes. The belt was removed the fifth minute and the blood pressure rose in one minute to 75. Examination twenty-four hours later revealed signs of mitral insufficiency which unmistakably had a causal connection with the Momburg constriction. Digitalis was given for three weeks, the pulse remaining irregular for twelve days, after which it resumed its former forcible and regular rate, while there was no further trace of dilatation of the heart or of systolic murmur at the apex.

Mitteilungen aus den Grenzgebieten der Med. und Chir., Jena

XX, No. 2, pp. 195-376. Last indexed May 15, p. 1650

94 *Cholecystitis and Cholangitis without Concrements. Riedel.
95 *Fibrinous and Purulent Prehepatitis. Id.
96 Pathology of Jaundice. (Zur Pathologie des Ikterus.) O. Fischer.
97 Resection of Long Stretches of Intestines. (Erwiderung auf die Arbeit von Prof. Albu über Versuche über Ausschaltung von Dünn- und Dickdarm.) W. Denk.
98 Coagulating Property of Blood from Surgical Standpoint. (Verwertung der Koagulationsbestimmung des Blutes in der Chirurgie.) W. Denk and I. Hellman.
99 *Case of Brain Abscess with Complicating Meningitis. (Hirnabscess kompliziert durch Meningitis.) G. Bouvicini and H. v. Haberer.
100 Pathology of the Movements of the Intestines. (Zur Pathologie der Darmbewegungen.) G. Hotz.
101 Foreign Bodies in Appendix. (Fremdkörper im Wurmfortsatz.) Rammstedt.
102 Hemorrhage in Diseased Appendix. (Blutungen im kranken Wurmfortsatz.) R. Kretz.
103 *Surgical Treatment of Gastric Ulcer. (Zur chirurgischen Therapie des Ulcus ventriculi.) P. Clairmont.
104 *Neoplastic Nature of Enlargement of Prostate. (Pathogenese der "Prostatahypertrophie.") W. Runge.
105 Chronic Rigidity of Spine. (Chronische Wirbelsäulenversteifung; Spondylarthritis ankylopoetica, und Fall von Wirbelsäulenversteifung.) V. Reichmann.

94. **Inflammation of the Gall Bladder, etc., without Concrements.**—Riedel found no stones in 11 of 65 patients operated on for supposed gallstone disease during the last year. The adhesions left by a cholecystitis without stones generally cause no disturbance, but sometimes they induce intense pain and dilatation of the stomach follows if the passage of the food in the duodenum is interfered with. He has cured a number of patients by severing such adhesions. He describes three cases in which the trouble was an acute infection of the gall bladder, without stones, and the year or more of health since demonstrates that the dreaded cancer did not exist. In one case a young woman had been taken suddenly sick, vomiting constantly, and reacting with a chill to lavage of the stomach or any disturbance of the flow of bile, and finally collapse as three quarts of serous fluid collected in the bile passages. She recovered slowly after the operation, but after the cure of a streptococcus gall bladder affection was restored to complete health. The cholangitis may have been due to streptococci from the gall bladder. In two other cases the disturbances were not severe except for the jaundice; he did not operate, but is still treating these patients with Carlsbad water and is confident of a speedy cure. The severe cases require drainage of the gall bladder, but a course at Carlsbad is advisable in all cases when attainable.

95. **Fibrinous and Purulent Prehepatitis.**—This affection is an inflammatory process occurring exclusively on the anterior aspect of the liver. If aseptic there is fibrinous inflammation, sometimes but not always complicated with the cholecystitis without concrements, but if there is infection there may be suppuration and an abscess. In three cases the aseptic inflammation led to extensive adhesions, causing painful traction and requiring operative intervention, but there was no enlargement of the liver or trace of edema. In three other cases the purulent prehepatitis caused symptoms mistaken for a perforation of the gall bladder. The patients were between 33 and 62, except one child of 2, with protuberant liver region, which proved to be a prehepatic abscess and gave the clue to the other cases. The origin of the aseptic cholecystitis and cholangitis without concrements is still a mystery, as also of this collection of laudable pus in front of the liver in these cases of prehepatitis.

99. **Brain Abscess with Complicating Meningitis.**—The patient was a woman of 32 and the brain abscess was of otitic origin. The case is studied from the neurologic, surgical and general medical points of view, some of its features encouraging an attempt to trephine even in suppurative diffuse meningitis, the technic for which is discussed.

103. **Operative Treatment of Gastric Ulcer.**—Clairmont relates the experiences at von Eiselsberg's clinic with a total of 259 operations for gastric ulcer. The mortality has been reduced in the twelve years covered from 24.5 per cent. to 6.6 per cent., and with posterior retrocolic gastroenterostomy from 16.6 to 3.5 per cent. The ultimate outcome of a gastroenterostomy is a complete cure in only 52 per cent. of the cases, with improvement in 15 per cent. The outlook is more promising the nearer the ulcer to the pylorus. In only 3 per cent. of the total number of cases was it impossible to locate the ulcer by the anatomic findings. Ulcers accompanied by inflammatory tumefaction and callous penetrating ulcers give

especially favorable results with operative treatment, provided they are not too far distant from the pylorus.

104. **Pathogenesis of Enlargement of the Prostate.**—Runge examined the prostate after removal on account of excessive enlargement in 29 cases, the patients being between 70 and 90 in all but 6 cases, in which the ages ranged from 20 to 60. In 2 cases each there was tuberculosis or an abscess; in 2 the prostate was apparently of normal structure, and in 1 it was atrophied. In the 22 others the microscope revealed that the prostate was the seat of adenomatous proliferation and consequently that the enlargement was of neoplastic nature.

Monatsschrift für Geburtshülfe und Gynäkologie, Berlin

June, XXIX, No. 6, pp. 677-968

106 *Promotion of Breast Nursing. (Zur Physiologie und Technik der natürlichen Ernährung des Neugeborenen.) R. T. Jaschke.
107 Puerperal Fulminating Purpura or Hemorrhagic Sepsis. E. Sachs.
108 Dilatation of the Cervix. Uterine Forceps. H. Wendel.
109 *Results of Treatment of Uterine Cancer. (Ergebnisse der Behandlung des Uteruskarzinoms.) G. Klein.
110 Giant-Celled Sarcoma in Wall of Ovarian Cystoma. (Riesenzellensarkom in der Wand eines Ovarialkystom.) R. Pucher.
111 Double Uterus with Birth of Twins. (Zwillingsgeburt bei doppeltem Uterus.) H. Cramer.
112 *Nature of Pregnancy Disturbances and their Prevention. (Wesen der Schwangerschaftsbeschwerden und ihre Verhütung.) E. Diesing.
113 Growth of Hips in Breadth according to Age and Sex. (Wachstum der Hüftbreite nach Alter und Geschlecht.) S. Weissenberg.
114 Etiology of Leakage of Amniotic Fluid and of Pregnancy outside the Fetal Membranes. (Aetiologie der Hydrorrhoea amnialis und der Graviditas extramembranacea.) F. Hornstein.
115 Treatment of Rupture of the Uterus. C. Schütte.
116 *Fatalities after Palliative Interventions on Uterine Cancer. (Todesfälle nach Palliativeingriffen beim Carcinoma uteri.) P. Zacharias.
117 Metastasis in the Skin from Uterine Cancer. (Hautmetastasen beim Uteruskarzinom.) H. Offergeld.
118 Wedge Resection of Fundus of the Uterus. (Keilresektion des Fundus uteri.) F. Heinsius.

106. **To Promote Breast Nursing.**—In this communication from von Rosthorn's gynecologic clinic at Vienna, Jaschke states that it was possible to secure the mother's milk in sufficient amounts in 91.3 per cent. of 1,000 children, while mixed feeding was obtained in 7.9 per cent. and only 0.8 per cent. had to be artificially fed. This was the regular sequence of births, and he succeeded in obtaining a normal secretion of milk by various measures, including suction apparatus at first to make the milk come more readily and drawing the milk with a breast pump to feed the child with a spoon when for any reason it did not get enough. One very important point, however, is that the child was made to suck for a few minutes each time before being fed with a spoon. Success depends mainly on the skill and devotion of the attendants, who must favor the natural nursing in every possible way, and this requires skill and immense patience. He is convinced that the loss in weight after birth is the result of insufficient food, and that it is possible to prevent it by giving pumped mother's milk, keeping control of the amount by weighing the child three or four times a day. His average of 18 healthy children was 19 c.c. the first day; 90 c.c. the second; 193.2 c.c. the third; 260.4 c.c. the fourth; 339.3 c.c. the fifth; 402 c.c. the sixth; 415.6 c.c. the seventh, and 470.5 c.c. the eighth. Unless the child gets about these amounts it is insufficiently nourished. In one ward with unusually conscientious attendants the children obtained their natural heritage of mother's milk in all but 0.5 per cent., with only 1.7 per cent. requiring additional food.

109. **Uterine Cancer.**—Klein comments with horror on the small proportion of women alive after five years, the absolute cures amounting to only 3.6 per cent. in his experience with 421 cases of uterine cancer. Only 40 per cent. were operable, and this is the factor that should be energetically combated. He urges medical societies to appoint committees to educate the public and warn them against the dangers from quack practices, especially in cases of cancer.

112. **Disturbances of Pregnancy and Their Prevention.**—Diesing has long practiced in the orient and in Africa, but never witnessed there an instance of the pregnancy disturbances common elsewhere. He ascribes this difference mainly to the different diet. The pregnant woman uses up iron more than sulphur, so that the latter predominates in the blood, and this is the cause of the disturbances. The sulphur is derived from the albumin of the food, mostly in the form of meat. The African races do not allow women to eat meat.

116. **Fatalities After Curetting Uterine Cancer.**—Zacharias reports seven cases which warn against the danger of opening a passage into the blood for the virulent germs in a cancer during the course of a palliative scraping of an inoperable uterine carcinoma. His experience indicates that it is wiser not to curette before removing an operable malignant growth.

Münchener medizinische Wochenschrift

June 8, LVI, No. 23, pp. 1161-1216

119 *Mistakes in Diagnosis of and Failures in Treatment of Ear Diseases. (Aus dem Gebiete der Ohrenheilkunde.) H. Schwartze.
120 Spread of Syphilis at Freiburg since Abolition of Medical Inspection of Prostitutes. E. Jacobi.
121 *Primary Tuberculosis of Nasopharynx. (Zur Kenntnis der primären Tuberkulose der Nasenrachenschleimhaut.) H. Merkel.
122 *Pseudomembranous Enteritis. (Ueber kruppöse Darmentzündungen.) G. Baermann and O. Eckersdorff.
123 Medullary Pseudoleukemia. v. Domarus.
124 Roentgen-Ray Inspection of Concrements in the Prostate. (Röntgenologie der endogenen Prostatakonkremente.) G. Forssell.
125 Hypertrophic Stenosis of Pylorus in Infants. K. Kaspar.
126 Technic for Local Anesthesia for Immediate Repair of Perineal Tears. (Schmerzlose Dammnaht.) Mathes.
127 Tuberculosis-Immune Opsonins. (Bakteriotropine.) A. Böhme. Commenced in No. 22.
128 *Substitute for Bismuth in Roentgen Work. (Ersatz des Wismut bei Röntgenaufnahmen.) K. Taege.

119. **The General Practitioner and Treatment of the Ears.**—Schwartze says that he has repeatedly encountered instances of actual harm done by "pseudospecialists" in otology, or by general practitioners failing to differentiate ear affections or overlooking them or inflicting injury in attempts to extract foreign bodies from the ears. He has known of cases in which the symptoms of internal ear disease, vertigo, nausea, vomiting, were ascribed to a stomach disorder, while pyemia originating in the ear was diagnosed as typhoid on account of the fever, diarrhea, enlargement of the spleen and bronchitis observed. Otitic pyemia may even simulate acute articular rheumatism, although the discovery that the larger joints are affected first speaks for the former trouble; in acute rheumatism the small joints are generally the first involved. When the otitic pyemia assumes a chronic form it is difficult sometimes to recognize it; but abrupt changes from high fever to subnormal temperature within a single day or a few hours should suggest it. The physician is also liable to blunder by assuming an ear affection when none exists, as in cases of radiating pains from a carious tooth or acute angina, or rheumatic pains, or subjective noises in the ears in chlorosis and anemia without reduction of hearing capacity. Eczema of the outer ear, if neglected, may even simulate a malignant tumor. In a recent case he removed a necrotic cholesteatoma from a patient who was in a very serious condition from the disturbances connected therewith; for weeks she had been under the treatment of a "pseudospecialist," who had diagnosed the case as a furuncle and applied treatment accordingly. A prolapsed, swollen or protuberant tympanic membrane may be mistaken for a polyp, as occurred once in Hyrtl's experience, the attempt at extraction resulting in the death of the patient from meningitis. Operations may be performed on lymph glands in the neck, the surgeon overlooking the causal chronic ear affection. He warns further that repeated injection of a warm fluid into the ear is liable to transform a mere catarrhal affection of the middle ear into a suppurative process or aggravate such. Salt is as efficient in sterilizing the ear as boric acid, he says, and when used for rinsing the ear, in the proportion of a heaping teaspoonful to the quart of boiled water (7.5 gm. to the liter), it prevents the raising up of the epithelium of the mucosa in the middle ear. Blister revulsion does no good in acute otitis media, and insufflation of a powder in cases of suppuration in the middle ear is dangerous, as it may glue up the opening and shut in the pus. It is permissible only with a large defect in the membrane, and the patient should never be allowed to insufflate the powder. He has recently encountered three serious cases of foreign bodies in the ear; in one a small pebble had been forced into the drum by unskillful maneuvers to remove it, and although the pebble was removed later by an

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operation, yet fatal meningitis resulted. Every year, he adds, a not inconsiderable number of persons lose their lives in consequence of foreign bodies in the ears, but not so much from the foreign bodies themselves as from the attempts to extricate them. Syringing with warm water is all that should be done to extract them. Never, he adds, never allow yourselves to be tempted to seek to extract them with an instrument. An insect in the ear may be killed by cigar smoke or a little warm water, or, better still, the fumes of chloroform; maggots may be expelled by pouring sterilized oil into the ear; they come to the surface of the oil as they begin to suffocate. The dreaded "earwig" very seldom gets into the ear, but he has known of many instances of fleas, bedbugs, small beetles and mites entering the ear. Numerous cases of injury have come under his notice in which injury resulted from attempts at extraction of a foreign body when there was none present, or it was in the other ear. In case of recent trauma affecting the ear it should not be rinsed out, and manipulations with instruments should be avoided as much as possible. The only correct treatment is an aseptic protecting dressing and rest in bed. Insufflation of air is dangerous, he declares, in sclerosis of the middle ear, especially in unilateral ear trouble, and nose douches and syringing may also affect the ear unfavorably. Intranasal operations often set up an acute otitis, sometimes entailing pyemia; operations for chronic empyema in the accessory cavities should be restricted to the cases with intolerable headaches. Evacuation of the sphenoidal and ethmoidal sinuses may also lead to injury of the base of the brain, with fatal meningitis; the rarity of published cases of this kind does not mean that such mishaps do not occur more frequently.

121. **Primary Tuberculosis of the Nasopharynx.**—Merkel has found only four cases on record of primary tuberculosis of the nasopharynx confirmed by autopsy, and here reports a fifth case. Without the autopsy findings it would have been recorded as an unquestionable case of pulmonary tuberculosis with secondary tuberculous meningitis. Tubercle bacilli were found constantly in the sputum, but the focus in the nasopharynx was the only manifestation of tuberculosis discovered in the cadaver, and this gave no sign of its presence except the bacilli which were ascribed to the lungs.

122. **"Croupous Enteritis."**—This communication from Sumatra reports an epidemic of an acute intestinal affection with a tempestuous onset with fever, leucocytosis, rapid pulse, violent colics, blood-stained stools and tenesmus and speedy fatal termination. Ten cases are reported with autopsy findings; a pseudomembrane had developed at points in the small or large intestine, or both, and streptococci were found in overwhelming numbers.

128. **Substitute for Bismuth in Roentgen Work.**—Taege has found that the addition of 1 per cent. tragacanth to the suspension of magnetic oxid of iron, which has been recommended recently as a substitute for bismuth, will hold the iron perfectly in suspension for hours. Otherwise it soon drops to the bottom of the vessel. He mixes the tragacanth with the oxid, then adds the water, and shakes the whole in a bottle.

Virchows Archiv, Berlin

June, CXCVI, No. 3, pp. 385-576

129 Pathologic Anatomy and Pathogenesis of Syringomyelia and Similar Affection of Medulla Oblongata. (Syringomyelie und Syringobulbie.) K. Petren. Commenced in No. 2.
130 Changes in Pancreas with Cirrhosis of the Liver. (Veränderungen des Pankreas bei Leberzirrhose.) S. M. Poggenpohl.
131 Chronic Metritis. L. Hirsch.
132 Guanin Crystals in the "Interference Cells" of the Amphibia. E. Neumann.
133 Request for Autopsy in 1591. (Aufforderung zu einer Privatsektion.) D. v. Hansemann.

Zeitschrift für Geburtshülfe und Gynäkologie, Stuttgart

LXIV, No. 3, pp. 449-694. Last indexed June 12, p. 1961

134 Fever with Uterine Myomas. (Fieber bei Myomatosis uteri.) O. v. Franqué.
135 Measurement of True Conjugate Diameter. (Direkte und indirekte Messung der Conjugata vera.) O. Polano.
136 *Relation of Retention of Membranes and Placenta to Puerperal Fever. (Beziehungen der Eihaut- und Placentarretention zum Puerperalfieber.) R. Puppel.
137 *Direct Pushing up of the Pelvis as Modification of the Trendelenburg Position. (Ueber Beckenhebung, eine Abänderung der Beckenhochlagerung.) E. Opitz.
138 Vaginal Staphylococci. P. Jung.
139 Traumatic Epithelial Cysts in the Vagina. J. Risch.
140 Involvement of Rectum in Adenoma of the Uterus. (Uebergreifen der Adenomyome des Uterus auf den Mastdarm.) O. v. Franqué.
141 *Surgical Treatment of Puerperal Fever. (Zur chirurgischen Behandlung des Kindbettfiebers.) A. Koblanck.

136. **Connection Between Retention of Membranes and Placenta and Puerperal Fever.**—Puppel's experience speaks against the assumption that retention of part of the fetal membranes or placenta can cause puerperal fever; he is convinced that active measures to remove retained scraps are not justified, and may lead to severe infection. Only when there is much hemorrhage and high fever should the attempt be made to remove placenta scraps. Especially with febrile processes it must be done with extreme care and caution not to fan the flame. He has found in the literature records of twenty cases of retention of membranes or placenta or both without a trace of fever, and to this list he adds thirteen from his own practice. Review of autopsy records has shown further that retained scraps of placenta tissue were found in only 3.7 per cent. of all the fatal cases of puerperal fever, and could not have been the cause of the fever. On the other hand, evacuation of the uterus in thirteen cases without a trace of fever was followed by development of fever in 61.5 per cent. of the cases, very serious in 50 per cent. The results were still more pernicious when the infection had already spread beyond the uterus; fatal pyemia followed promptly in two such cases.

137. **Pushing Up the Pelvis; a Modification of the Trendelenburg Position.**—Opitz has the woman recline on a horizontal table with a board under the buttocks. This board is then raised by a screw operated from beneath the table, lifting the woman's pelvis while head and shoulders and feet still rest on the horizontal table. His illustrations show the much greater oversight of conditions in the pelvis possible with this technic, the ampler access and the consequent shortening of the time required for operating in the pelvis, all of which his experience in the clinic has fully confirmed. The same device might be useful applied to the kidney or other region. One advantage of the lifting device is that the patient is less liable to be burned by the arrangements to keep the operating table warm. He adds that the problem of keeping the patient warm during the operation is not yet solved. The pressure of the relaxed body drives the blood out of the skin and thus renders it more liable to feel the effect of heat which otherwise would scarcely affect it. With the lifting device the table can be kept warm; the patient lies in the ascending hot air. A further advantage is that there is no interference with the circulation at the knees as with the Trendelenburg position.

141. **Surgical Treatment of Puerperal Fever.**—Koblanck states that from Feb. 1, 1907, to Jan. 1, 1909, 484 patients with puerperal fever have been treated at the Virchow hospital at Berlin, including 100 with general sepsis. In 6 cases of diffuse puerperal peritonitis, incision and puncture saved 2 of the women; in the other cases the intervention came too late. In 7 cases of puerperal suppurative thrombophlebitis, resection of the left ovarian vein was followed by recovery in 2 cases. In 15 cases of sepsis the uterus was removed and 6 of the patients recovered. In 8 of the 10 cases in this group in which bacteriologic examination was made, hemolytic streptococci were found, and he refrained from operating in the absence of this finding as the prognosis with the non-hemolytic streptococci and hemolytic other microbes is more favorable. In case of metastatic involvement of heart, eyes or air passages, the prognosis is so bad that hysterectomy offers no chances for success. Among the 100 cases of sepsis the heart was involved in 19 patients and only 2 of these recovered. In 8 cases the eyes were involved, and all but one of these patients succumbed. In 55 cases with serious involvement of the lungs or pleura in the septic process, only 9 patients recovered, and 2 of these had required resection of ribs for a suppurative streptococcus pleurisy. Septic joint processes were observed also in 8 patients, and only one of them recovered. These figures show the gravity of these metastatic processes, but they also encourage hysterectomy even in the most desperate cases, as 2 patients with severe endocarditis recovered, one with hemorrhage into the retina and pneumonia and another with streptococcus pleurisy. Be-

sides removing the infected uterus, the accessible metastases should also be operated on. Remarkable results from multiple intervention were obtained in some of the cases reported. The general condition is the index whether to operate or not, but he has been amazed at the way in which patients in general sepsis tolerate long and severe operations. The vaginal route is indicated only when general sepsis is threatening. Once established the abdominal operation is indispensable; if for no other reason, because the uterus is so decayed that it is impossible to remove it whole.

Hospitalstidende, Copenhagen

May 12, LII, No. 19, pp. 569-600

142 *Vaccine Treatment of Colon Bacillus Infection of Urinary Organs. (Om Vakcinationsbehandling af Collinfektion i Urinorganerne.) T. Rovsing.

143 *Invagination of the Bowel in Children and its Treatment. (Om Tarminvagination hos Born og dens Behandling.) C. E. Bloch. Commenced in No. 18.

May 19, No. 20, pp. 601-640

144 *Treatment of Acute Bleeding Gastric Ulcer. (Behandlingen af det akute blødende Mavesaar.) L. Kraft.

May 27, No. 21, pp. 641-680

145 Research on Secretion of Pepsin. K. Schroeder.

142. **Vaccine Treatment of Colon Bacillus Infection of Urinary Organs.**—Rovsing states that he made a trial of Wright's vaccine technic in treatment of colon bacillus nephritis and pyelitis entering on it with much skepticism, but he has become convinced of the great value of this method of treatment. He relates the histories of four out of the twelve patients thus treated, showing the prompt cure after failure of all other measures, and he urges others to try this technic in all cases rebellious to other methods of treatment. The reaction, both general and local, is surprisingly mild, and the local reaction might be reduced still more if the fluid was fractioned and injected at different points. The vaccination does not seem to affect the proliferation of the bacilli in the urine, and consequently he advises as supplementary measures a retention catheter and irrigation of the bladder with 2 or 3 liters of distilled water and 1 gm. (15 grains) of salol internally three times a day. The value of the vaccine treatment was especially evident in one case, the patient, a v-para of 65 with colon bacillus infection for a number of years and recurring acute nephritis. The last attack was septicemic, with coma and blindness in the right eye from thrombosis. Rovsing is convinced that the vaccine treatment was life-saving in this instance. The patient has had no signs of trouble during the six months since.

143. **Invagination of the Bowel in Children.**—Bloch reports nine cases to show the various types of symptoms that may be observed, and to sustain his assertion that non-operative measures have little prospects of success unless within the first twenty-four hours and only when the invagination is in the ileocecal region or in the large intestine. By attempting non-operative interference time is wasted and conditions rendered less favorable for successful operative measures later. If the first thorough attempt at reduction fails, there is little hope of its succeeding later. None but a skilled surgeon should handle the case.

144. **Treatment of Acute Hemorrhagic Gastric Ulcer.**—Kraft thinks that the treatment of hemorrhage from an acute gastric ulcer has entered on a new phase with gastroscopy and diaphanoscopy especially as introduced by Rovsing, described in THE JOURNAL, Oct. 24, 1908, page 1476. Surgeons have shrunk hitherto from attempting operative measures for acute gastric ulcer on account of the difficulty of locating the source of the hemorrhage. The acute gastric ulcer may be located anywhere in the stomach, it may be so small as to escape discovery, while the blood pressure drops so much under the influence of the anesthetic that the blood no longer oozes from the arroded vessel and it is thus overlooked. In half of the cases of operation reported in the literature it proved impossible to locate the ulcer and in half of these cases the patient died. The long search for the ulcer and the longer anesthesia required aid in depressing the vitality. All this has been changed by the introduction of diaphanoscopy which reveals a dark shadow where the blood is oozing from the arroded vessel, and Kraft reports two cases in which he operated under diaphanoscopy, the bleeding vessel disclosing itself at once by the small dark shadow. He threw a ligature around this vessel, making a sunken ligature. Immediately after the vessel had been ligated the outer end of the vessel, peripheral to the ligature, emptied itself of blood and the shadow cleared up, confirming the fact that the right vessel had been ligated. If the dark shadow had been cast by a thrombus, no change in the shadow would have followed the ligation. The buttonhole required to insert the gastroscope is too insignificant to make any demands on the patient's vitality, in comparison to the ordinary methods of operative interference for gastric hemorrhage. In his first case he had no gastroscope and used an ordinary cystoscope, not even having time to disinfect it thoroughly, consequently he had to pay the greatest attention to keep it from contact with the tissues. The operation was undertaken the seventeenth day after the first and only hematemesis, but there had been traces of blood in the stools constantly afterward. In about two months the patient was entirely cured of gastric trouble and now eats ordinary diet without disturbance. In the second case, by some technical blunder the electric current became short circuited and the tissues were burned during the diaphanoscopy, resulting in fatal sloughing, but autopsy revealed that the sunken ligature had answered its purpose perfectly. Preliminary rinsing out of the stomach was found an important aid for the diaphanoscopy. He comments on this rapid, easy, simple and certain method of treating bleeding gastric ulcer as destined to wide application when the general practitioner learns to appreciate it and refers the patients to the surgeon before the anemia becomes so intense that the outcome under any circumstances is doubtful.

Books Received

All books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. A selection will be made for review in the interests of our readers and as space permits.

PRACTICAL GYNECOLOGY. A Manual for Nurses and Students. By Netta Stewart, Sister in the Gynecologic Wards of the Royal Infirmary, Edinburgh, and James Young, M.B., F.R.C.S.E., Clinical Tutor in Surgery and Late Resident Gynecologist, Royal Infirmary Physician to Lauriston Pre-Maternity Home, Edinburgh. Cloth. Pp. 327, with illustrations and plates. Price, $2.00, net. New York: William Wood & Co., 1909.

THE HARMFUL EFFECTS OF ACETANILID, ANTIPYRIN, AND PHENACETIN. By L. F. Kebler, Ph. C., M.D., Chief Division of Drugs, with the Collaboration of Drs. F. P. Morgan and Philip Rupp, Assistant Chemists, U. S. Department of Agriculture, Bureau of Chemistry. Bulletin No. 126. Paper. Pp. 85. Washington: Government Printing Office, 1909.

REPORT ON NATIONAL VITALITY, ITS WASTES AND CONSERVATION. Bulletin of the Committee of One Hundred on National Health. Prepared for the National Conservation Commission by Professor Irving Fisher, of Yale University, Member of the Commission. July, 1909. No. 30. Paper. Pp. 138. Washington: Government Printing Office, 1909.

LEHMANN'S MEDIZINISCHE ATLANTEN. Band VIII. Atlas und Lehrbuch der Hygiene mit besonderer Berücksichtigung der Städte-Hygiene. Herausgegeben von Professor Dr. W. Prausnitz, Vorstand des hygienischen Instituts der Universität Graz. Cloth. Pp. 699, with illustrations. Price, 28 marks. München: J. F. Lehmann's Verlag, 1909.

LEHMANN'S MEDIZINISCHE ATLANTEN. Band VII. Atlas und Grundriss der Röntgendiagnostik in der Inneren Medizin. Herausgegeben von Dr. med. Franz M. Groedel, Bad Nauheim. Cloth. Pp. 338, with 297 illustrations. Price, 24 marks. München: J. F. Lehmann's Verlag, 1909.

HANDBOOK OF THE DISEASES OF THE NOSE AND THROAT. By Eugene S. Yonge, M.D., Physician to the Manchester Hospital for Consumption and Diseases of the Throat. Cloth. Pp. 407, with illustrations. Price, 9 shillings, net. Edinburgh: William Green & Sons, 1909.

RATIONAL IMMUNISATION IN THE TREATMENT OF PULMONARY TUBERCULOSIS AND OTHER DISEASES. By E. C. Hort, B.A., B.S.C., M.R.C.P. Cloth. Pp. 75, with illustrations. Price, $1.50. New York: William Wood & Co., 1909.

TRANSACTIONS OF THE ROYAL ACADEMY OF MEDICINE IN IRELAND. Vol. XXVII. Edited by James Craig, M.D., F.R.C.P.I., General Secretary. Cloth. Pp. 397, with illustrations. Dublin: John Falconer, 53 Upper Sackville St., 1909.

AGRICULTURAL BACTERIOLOGY. By H. W. Conn, Ph.D., Professor of Biology at Wesleyan University. Second Edition. Pp. 331, with 64 illustrations. Cloth. Price, $2.00, net. Philadelphia: P. Blakiston's Son & Co., 1909.

PROCEEDINGS OF THE AMERICAN SOCIETY FOR PSYCHICAL RESEARCH. Vol III. July, 1909. Part I. Paper. Pp. 592, with illustrations. New York: 519 W. 149th St.

TRANSACTIONS OF THE NEW HAMPSHIRE MEDICAL SOCIETY. 118th Anniversary held at Concord, May, 1909. Paper. Pp. 335.

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